Project Number: 41-HXA-DK33

CONSOLIDATION AND THE DANISH ORGANIC FOOD MARKET: AN ANALYSIS OF ACTOR MOTIVATIONS AND THEIR EFFECTS ON THE SELECTION OF ORGANIC FOOD

An Interactive Qualifying Project Report

submitted to the Faculty of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

by

Erin E. Bliven	Brian R. Landry	Nicholas Meier Seifert

Date: May 5, 2003

Approved:

Professor Holly K. Ault, Advisor

Key Words:
1) Organic Food
2) Sustainable Agriculture
3) Supermarkets
4) Market Dynamics

Abstract

During the 1990s, the Danish organic food market experienced tremendous growth. As a result, there has been a shift away from small, idealistic pioneers due to an influx of large, business-oriented producers. This project studied the effects of this shift on the market dynamics between producers and retailers and the selection of organic food in supermarkets. Surveying and interviews were used to determine what organic products were stocked and why. Recommendations were made on how small producers can remain viable.

Executive Summary

Since the early 1970's, Worcester Polytechnic Institute (WPI) has required its students to complete an Interactive Qualifying Project (IQP) as part of the Bachelor of Science degree. The main goal of this project is to explore how technology and society impact each other. This project has been completed in fulfillment of the IQP requirement.

Organic foods have experienced steady growth over the past forty years. This growth has been particularly strong in Denmark, where over 6% of utilizable agricultural area is now used for organic production (Hamm, Gronefield & Halpin, 2002). With this growth, however, larger companies have entered the organic food market, often pressuring the smaller, pioneering companies out of the market.

This project was sponsored by NOAH (Friends of the Earth – Denmark) and the Science Shop at the Technology and Sciences Department of the Technical University of Denmark (DTU). NOAH is concerned about how the organic food market will be impacted if small organic producers fail to remain competitive. DTU has a working group dedicated to organic food research and will use our data and findings as a foundation for future research.

The main goal of this project was to assess how consolidation affects the selection of organic food available to consumers in Danish supermarkets and gauge the attitudes of the producers and retailers regarding this trend. For the purposes of this project, consolidation is defined as the merging of two or more companies.

The project employed two main methodologies to achieve this goal. A supermarket survey was conducted in thirty-five Copenhagen area retail food outlets to assess the number of brands available to consumers for conventional and organic bacon, ketchup, milk, peanut butter and rice cakes. This study showed a variety of market structures. In the ketchup market, there are over a dozen brands sold in the markets visited (11 conventional, 6 organic). Heinz has introduced an organic ketchup, increasing competition for Urtekram, the pioneer in

this area. However, in peanut butter and rice cakes, which are specialty items in Denmark, Urtekram has not seen as much competition and still remains a dominant player. In milk, Arla Foods has continued to grow larger through the acquisition of smaller dairies. It controls a large market share of the organic milk market in addition to over 90% of the combined milk market in Denmark. In the face of this competition, three small organic dairies (Naturmælk, Øllingegaard and Thise) still remain competitive by employing a variety of strategies. In bacon, Hanegal, a small organic producer is struggling. This, however, is not attributable to competition with Tulip, the largest producer, but rather to a general weakness in the organic bacon market compounded by high conversion and production costs.

To place the market survey results in context, interviews were conducted with a variety of producers and retailers involved in the organic milk and bacon sectors. Additional interviews were conducted with researchers, regulators and trade groups for background information. In total, twenty interviews were conducted by phone or in person for interviewees located near Copenhagen and Århus. The goal of the interviews was to investigate the motivations of producers and retailers in developing and stocking organic products. The interviews allowed us to develop a snapshot of the current market situation as well as make recommendations based on perceived future trends. In particular, we were able to make suggestions that could help the organic bacon market grow to a sustainable level.

Throughout this study, we observed that the influx of larger companies into the market was often a necessary part of the growth of organic foods, even though their entrance was usually attributable to economic interests rather than ideological concerns. This is because larger companies have the financial, logistical and promotional resources to market organic products to a wider audience that has different concerns from the environmentally or socially minded consumers that traditionally purchase such products. To be sure, the collapse or acquisition of small companies can be disruptive on local economies, particularly if the

producer employs a significant portion of the local workforce. However, we do not believe that the entrance of large producers necessary implies the collapse of small producers. Rather, we still think there is a valuable role for small, idealistic companies to play in the organic market that will preserve their economic viability. We believe this role is to continue to raise the bar for the development of new products and social and environmental standards for food production.

Small companies that currently fill these roles differentiate themselves from larger competitors through their product characteristics or by developing niche markets that large companies can not or choose not to compete in. A key part of this strategy has been developing partnerships with supermarket chains that match the producer in size and ideology. Such strategies have been largely successful because the producers find a willing buyer for their new products. We believe that these strategies will continue to be successful in the future.

In order for small, idealistic producers to remain financially solvent and for new ventures to succeed, consumers must be aware of the differences between various producers and demand products that have the positive environmental and social characteristics for which NOAH advocates. To facilitate this demand, we recommend that NOAH undertake public information efforts to educate consumers about these differences. Our "Recommendations" and "Areas for Future Action" chapters detail several ways to do this, including the development of a website that would allow consumers to research the social and environmental policies of producers and retailers.

This report is the first that we are aware of to explore the differences in selection of organic and conventional food. It also brings to light strategies for companies to stay competitive as well as recommendations for developing the organic bacon industry in

Denmark. We hope that it will serve as a catalyst for future discussion, research and action in these areas.

Acknowledgements

The group would like to extend our thanks and gratitude to NOAH and the Technical University of Denmark for sponsoring this project. In particular, we would like to thank Bente Hessellund Andersen and Michael Sørgaard Jørgensen for the time and effort to make this project a success.

The group would also like to thank Professor Holly Ault for her insight and advice over the past two terms. Thanks are also extended to Professor Scott Jiusto for his guidance in preparing the proposal that defined this project. Professor Peder Pedersen and Tom Thomsen are also thanked for their work in developing the concept for this and the other projects at the Denmark Project Center and for introducing us to the Danish culture.

Finally, the group would like to thank the many organizations, companies and individuals that generously shared their time and knowledge with us during the course of our project.

Table of Contents

List of Tables

List of Figures

1.0 Introduction

Organic foods are generally grown without pesticides, fertilizers or antibiotics. Since their emergence in the late 1960s, their market has steadily grown, both in the United States and in Denmark. However, this growing market has attracted large companies to enter it, sometimes causing financial hardship for the smaller companies that pioneered organic foods, who were typically driven by environmental and health concerns. This project assessed how consolidation affects the selection of organic food available to consumers in Danish supermarkets and investigated the motivations and marketing strategies of both large and small producers in the Danish organic food industry.

NOAH (Friends of the Earth – Denmark) sponsored this project in conjunction with the Science Shop of the Technical University of Denmark (DTU). This report will help NOAH focus its efforts in promoting sustainable agriculture. The report will also provide information about the organic food selection for researchers at DTU and provide a base for future studies in this area.

The project employed two primary methodologies: surveying and interviewing. Markets in the Copenhagen area were canvassed to assess the selection (number of brands for sale) of five products. Bacon, ketchup, milk, peanut butter and rice cakes were chosen in consultation with our liaisons due to recent consolidation and interest in these industries. Data for both organic and conventional versions of these products were recorded at thirty-five markets and the results were analyzed to show the current structure of the market.

Twenty interviews were conducted in Denmark with various producers, retailers, academics and regulators in the Danish organic food market. These interviews were focused on the organic milk and bacon markets in order to gain a deeper knowledge of these industries.

This report contains the results from surveying and interviewing in Denmark as well as an extensive literature review and eleven background interviews conducted in the United States during January and February 2003.

The "Methodology" chapter of this report includes more detailed information about our procedures. The next two chapters, "Organic Food Literature Review" and "Market Dynamics Background" outline the results of our research in the areas of the history of organic food, government regulations, the economics of organic agriculture and network theory.

The remainder of the report presents and analyzes our findings. "Analysis of Market Data" presents graphs showing trends in the data that we collected as well as written interpretations. "Producer Strategies" presents research summaries of the major companies in organic milk and bacon production. "Retailer Strategies" presents similar summaries for one major retail chain in the Danish organic food market. "Analysis of Key Products" discusses various economic issues relating to milk and bacon. "Future Prospects for Organic Dairy and Bacon Markets" presents recommendations for these industries. The "Conclusions and Recommendations" chapter outlines the findings of this project and makes recommendations for NOAH's activities in the area of sustainable agriculture. "Areas for Future Action" details several areas that are ripe for future research, perhaps by IQP teams from WPI.

Several appendices include data collection sheets, information on our database design, market data, interview plans and interview summaries.

2.0 Methodology

The overall goal of this project was to assess the roles, responsibilities and motivations of large and small producers and retailers in the Danish organic food market. To do this, we employed three methodologies: literature review, market surveys and interviews. These techniques were selected through our preliminary research in the United States during January and February, 2003. They were included in our initial proposal to NOAH and were adopted with small modifications after our arrival in Denmark.

2.1 Literature Review

In the two months prior to our departure for Copenhagen, we researched the organic food market, both in the United States and Europe. Though the initial purpose of this research was to establish the areas to be explored while in Denmark, it soon became apparent that our final project report would require considerable analysis of current literature. It was necessary to gather these sources in the United States while we had interlibrary loan resources, readily available access to the Internet and an abundant supply of books in English.

Research continued in a more limited scope once we arrived in Copenhagen. Our proximity to the Danish market offered us more sources, such as financial data, relating to the European Union (EU). We also tailored our research to areas such as network theory that our liaisons recommended.

Our research focused on the history of organic foods, regulations, economics and consumer attitudes. We consulted over fifty sources to establish an understanding of the forces that have shaped and continue to shape the organic food market. The results of our research are incorporated throughout this report.

2.2 Surveying of Retail Food Outlets

The objective of our survey was to quantitatively depict the selection of organic foods as compared to conventional foods in Denmark. This was accomplished by measuring how

many brands of organic and conventional products were available to Danish consumers. This survey did not measure the breadth of organic food selection (i.e. how many organic dairy products are available), but rather the depth (i.e. how many brands are available for one liter cartons of organic skim milk).

We chose surveying because we were seeking a well defined set of data that would give us insight about the organic food market. Currently, information about organic product selection is not readily available. Surveying was necessary because it was not believed that supermarkets would easily share their product lists. Because of the constraints due to travel and the relatively short duration of our project, the nature of our study was exploratory. As such, we sought to identify major characteristics in the area of organic food selection, and suggest issues that might be explored more thoroughly by other researchers.

Our survey was focused on supermarkets because of the large role that they play in the organic food market. Over 70% of organic products are sold by supermarkets in Denmark (International Trade Centre, 1999). Our survey focused on Copenhagen because it is the heart of the Danish organic food market with about 90% of all consumers purchasing organic food with varying degrees of frequency (International Trade Centre, 1999).[1] While we did not cover a broad enough area to make statements about the Copenhagen market, we believe that our results provide insight into the forces at play and may bring to light areas to be explored by other researchers using a variety of methods.

Supermarkets were primarily selected from the listings under "Supermarkeder" in the 2002-2003 edition of "ENIRO Contakt" (Copenhagen's yellow pages). Stores were chosen from the following areas: Østerbro, Nørrebro, Vesterbro, Lyngby, and Christianshavn. These areas were selected because they were readily accessible with our public transportation

[1] It should be noted that many of these consumers may be purchasing organic products due to their low prices. Because of government subsidies and aggressive marketing by supermarkets, organic products are sometimes cheaper than their conventional competitors (International Trade Centre, 1999). In other cases, they are the only products available.

passes. Additional supermarkets and health food stores were selected through word of mouth and proximity to other outlets that we visited.

Our surveying procedure was tested and refined in Amherst, Hadley and Worcester, Massachusetts prior to our departure.

To keep the amount of data manageable, we only looked at five predetermined products with certain characteristics. These were determined in consultation with our liaisons. Products were selected to reflect areas of the market where consolidation had recently taken place or where there was interest by NOAH. The products are defined as follows:

- **Milk** – 1.5% fat content. 1 liter cartons and bottles. Excludes Jersey milk.
- **Bacon** – Excludes turkey bacon and back (breakfast) bacon. Includes low-salt bacon. Includes any package size.
- **Ketchup** – Excludes Mexican and sandwich ketchup. Includes any package size.
- **Rice Cakes** – Includes plain, low-salt and rice cakes of varying grains. Includes any package size.
- **Peanut Butter –** Includes any package size and flavor.

Both organic and conventional products were examined to allow for comparison of the selection between both types of products. For each product the brand, size, price, price per unit, organic certification and location of origin were recorded. This information was recorded on data collection sheets similar to the one included in Appendix A. The data were later entered into a Microsoft Access database for querying and retrieval. Microsoft Excel was used for analysis. Please see Appendix B for additional information about the database used in this project.

Data were analyzed in the following manner. Tables were used to show what brands each supermarket carries and which supermarkets carry each brand. Tables were appropriate

because our project studied a relatively small number of products, stores and brands. This allowed for the table to be visible on one page.

Graphs were used principally to show the number of brands of conventional and organic products and store. Particular attention was also given to variation and aberrations within chains (e.g. only one Irma carrying Hanegal bacon). These instances served as prompts for further investigation.

2.3 Interviewing

During our project we conducted interviews with a variety of actors in the organic food market, including representatives from supermarkets, dairies, slaughterhouses, wholesalers and government. Academics were also interviewed for background information. The main goal of this technique was to gain rich information about the market structure and interactions. There were several objectives for these interviews:

1. Investigate who grocers purchase from and why they choose those producers or distributors.
2. Ascertain the motivations of large producers and distributors in their decisions to produce or sell organic products.
3. Establish what the grocers and large producers see as their ethical and social responsibilities to producers, consumers, society and the environment.
4. Discover obstacles to stocking a greater selection of organic food.
5. Assess the attitudes of grocers and distributors regarding future growth of the organic food industry.
6. Investigate the difficulties that small companies face in competing in a market that is dominated by large companies.

Interviewing was chosen because it was found to be the most effective way to acquire rich information directly from the actors involved with organic food production, distribution

and sales. Interviewing was also ideal because the number of potential interviewees was small. An obstacle that we were concerned with was the unwillingness of businesses to grant us interviews if they did not see it being mutually beneficial. This, however, was not a major problem with the exception of the retail sector.

In order to achieve a thorough understanding of a few market areas, interviews were focused on the dairy and bacon sectors. These areas were chosen in consultation with liaisons and researchers from DTU because of the size of the markets, the number of companies within Denmark and the consolidation that has occurred in each area in recent years.

We were able to develop a list of approximately 40 possible interviewees during the first week of our project. These were gathered from *Organic Food and Beverages: World Supply and Major European Markets* by the UN International Trade Centre (1999) as well as from our liaisons and the World Wide Web. We used a "snowballing" method – soliciting additional contacts from interviewees – to gain additional relevant contacts. These potential interviewees were sent an electronic letter requesting an interview. Response to these e-mails was inadequate, however, most producers agreed to be interviewed when contacted by telephone. It was much more difficult to arrange retailer interviews.

We used a uniform procedure for each interview. Prior to each interview, we prepared a detailed interview plan based on the actor's role in the organic market and our research about the interviewee's organization. Standardized interview plans found in Appendix D were used as the basis for these interviews. Supplemental questions, tailored to the particular interviewee or company, were used to gain additional insight. Most interviewees requested an advance copy of our interview plans and these were furnished upon request.

Upon arriving at the interview, we verified permission to tape record the interview, if tape recording was deemed necessary. Laptop computers were used for more comprehensive note taking. After completion of the interview, we sent the interviewee an interview summary to ensure the accuracy of our information. These summaries were revised if the interviewee found discrepancies. The interviews were conducted either by telephone from our office or at the interviewee's facilities, depending on accessibility and scheduling considerations.

Throughout our interviews, we maintained high ethical standards as outlined by Doyle (2001). Specifically, we informed our interviewees of our project purpose so that they knew why they were being interviewed and how we would utilize their responses. We also asked the interviewees for permission to use their names or company names in the final report. As addressed earlier, we ensured accuracy of our information through verification of the interview summary.

To field test this methodology, we conducted interviews of experts in the United States. These interviews helped us to improve our interviewing skills, as well as gain background information. They also are an essential part of this report.

2.4 Creation of this Report

This report is the result of more than four months of research both in the United States and in Denmark. All information has been gathered through interviews and/or literature. Every effort has been made to corroborate any statements of interviewees that are included here.

This report will be used by NOAH and the Science Shop at DTU for information on the dynamics of the organic food market in Denmark. Copies were provided to NOAH, the DTU Science Shop and Gordon Library at WPI. An electronic copy in Adobe Acrobat format was made available online for interested parties. There has been little research on the

effects of consolidation on the organic food market in Denmark or the United States, so we hope this report will serve as the first of many studies on this issue.

3.0 Organic Food Literature Review

Faced with a fairly broad project description from NOAH, we concentrated our research during January and February, 2003 on a examining the breadth of issues prevalent in the organic food market. Through this research and additional conversations with Bente Hesselund Andersen and Michael Sørgaard Jørgensen both before and after our arrival in Copenhagen, we were able to identify areas that seemed particularly salient for this project. These issues were explored in greater depth. The results of this research are seen here. (Summaries for interview referenced in this chapter can be found in Appendices E and F).

3.1 History of Organic Food

The history of the organic food movement says much about Western culture and its quickly developing technology. Prior to the industrial revolution and the advent of motorized farm machinery, most farms were organic. Genetically modified foods were the stuff of science fiction, and single species crops were impractical. Farmers grew varying crops that were predominantly sold to local consumers. The widespread acceptance and use of the internal combustion engine and the tractor, however, meant that more land could be cultivated, and that those products did not necessarily have to be sold locally.

With the industrial revolution also came the introduction of pesticides and other chemicals as a means for increasing crop yield. Some of the earliest chemicals used were substances such as lead and arsenic because of their availability, as well as DDT; all of which are now recognized as toxic. Near the beginning of the 20th century, leaders of the early conservation movement, such as John Muir and John James Audubon, began to speak out against the use of these chemicals (Dunn-Georigiou, 2002).

Though many alternative thinkers recognized the importance of the organic movement it was not until 1962 that widespread public attention was given to these issues. This interest was catalyzed by Rachel Carson and her book *Silent Spring*. *Silent Spring*

focused predominantly on the use of DDT and the impact it was beginning to have on the world community. Carson's simple language allowed for the complicated issues discussed to be easily understood by a broad audience. DDT was eventually banned in the U.S. and many other countries. Interest in the organic movement further grew in 1989 with the Alar scare. Alar was a synthetic substance used to color apple skins red which was found to be toxic (Rawson, J., interview, February 10, 2003).

The organic foods market has seen unprecedented growth in the past two decades as the effects of pesticides became more widely known. This growth has been felt more in some areas than others, with the organic fruit and vegetable production sector being a particularly strong segment in the United States, as Figure 1 below illustrates.

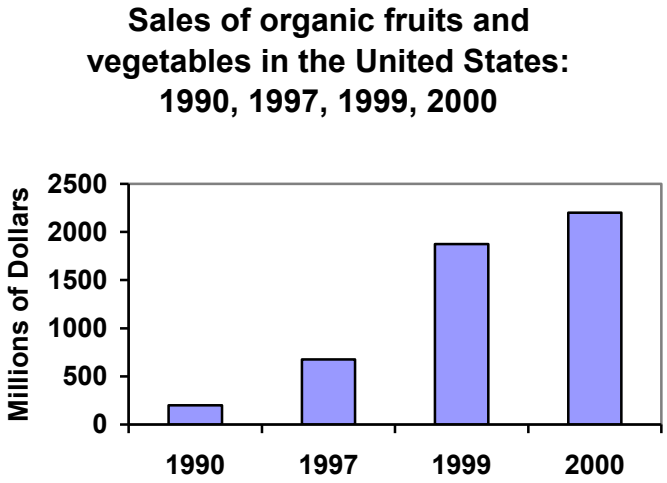


Figure 1: "Sales of organic fruits and vegetables" from Nutrition Business Journal

Figure 1 illustrates the market growth of organic produce in the United States; however growth in other sectors is being seen in many countries, including Denmark and the European Union (EU).

3.1.1 History of Organic Food in Denmark

The development of organic food in Denmark has been unique among other countries, including other European nations. This reflects the distinct nature of Danish culture. The

interactions between consumers, government, industry and media over the past decades have shaped the organic industry that is present today. While there is not a concise history available from any single source, we have attempted to pull together the story of organic foods in Denmark from a collection of primary and secondary sources.

By all accounts, the origins of the organic food movement in Denmark came out of the hippie movement of the 1960s (Krohn, interview, April 2, 2003; Damsgaard, interview, April 9, 2003). While it flourished in the 1960s, its roots extend as far back to the principles of biodynamic farming in the 1930s (Damsgaard, interview, April 9, 2003). Cooperatives (coops), where people would gather to buy food in bulk, sustained the early movement, and in 1971, Lisbeth Damsgaard and her husband opened the first organic food shop in Denmark (Damsgaard, interview, April 9, 2003). The Damsgaard's market quickly grew in size and the soon turned it into a company called Urtekram. This company went public in 1985 and still exists today, although under different ownership, and it is the leader in organic processed products and dried fruits in Denmark (Damsgaard, interview, April 9, 2003).

Organic food quietly grew through markets like the Damsgaard's until the late 1980s. At this point a number of events happened that spurred development in areas essential to the growth of the organic food market: consumer demand, assistance to farmers, and uniform labelling policies (Michelsen, interview, March 25, 2003).

In 1987, the first organic legislation was introduced in Denmark, beginning a policy of multifaceted government support for organic agriculture (International Trade Centre, 1999). A key feature of this legislation was establishment of a state controlled certification program. The most visible symbol of this is the "Ø-mark", which will be discussed in greater detail throughout this report.

The next big development in the organic food market came from the supermarkets between 1992 and 1993. Urtekram was able to convince Irma, a large supermarket chain in

Copenhagen, to place between 50 and 100 organic products together in one area of their stores (Damsgaard, interview, April 9, 2003). FDB (Coop Denmark), the parent of Irma and several other chains, also adopted a policy of lowering the price of organic products to competitive levels. This dramatically increased the sales of organic products (International Trade Centre, 1999).

The year 1995 saw further growth in the organic food market. The government put forward the *Action Plan for the Advancement of Organic Food Production in Denmark*, which set targets for conversion of farmland (International Trade Centre, 1999). At the same time, several stories were published in Danish newspapers detailing environmental and health problems due to pesticides (Krohn, interview, April 2, 2003; Damsgaard, interview, April 9, 2003). These stories led to spikes in the market, particularly for organic milk (Krohn, interview, April 2, 2003).

This increased demand placed considerable strain on the dairy companies. It caused MD Foods, the largest dairy in Denmark and the predecessor to Arla, to offer increased incentives to organic dairy farmers and it opened the door for other competitors to enter the market (Arla, 2001; Krohn, interview, April 2, 2003). Arla's rush to increase supply, in concert with the delay imposed by the two-year conversion period for organic dairy production, led to an oversupply of organic milk that continues today.

Organic growth continued in many organic sectors until 1999 at which point the market stagnated. Around the same time, the government issued *Action Plan II* which provided detailed recommendations and policy guidelines for a number of areas of the organic market (International Trade Centre, 1999). Although growth currently remains neutral, Denmark is a leader in this sector and several countries are following its approaches. While most growth up to this point has been in the organic dairy sector, other markets remain underdeveloped and have potential for future growth (Nielsen, interview, April 9, 2003).

3.2 Government Regulations

Government has played at least a minimal role in regulating commerce since the renowned economist and philosopher Adam Smith first wrote about the free market. This is seen today in the organic food market where government regulation manifests itself in a number of ways, both positive and negative. Understanding these regulations is essential to understanding constraints and mandates on the actors in the organic food industry.

3.2.1 European Union Organic Production Regulations

The EU first passed organic food production regulations in June 1991. The regulations were amended in 1999 to include organic livestock production. The EU Regulations, also known as Council Regulations (EEC) or CODEX (1991), encompass every aspect of organic agriculture and livestock production, including definitions, labeling regulations, crop production regulations, and livestock production regulations. These regulations are summarized below.

These regulations apply to any "unprocessed agricultural crop", "unprocessed livestock products", "processed agricultural crops or livestock products", "feedstuffs" and "feed materials". Basically, the regulations govern any organic produce, such as apples or lettuce, organic meats, packaged organic foods, such as cereal or frozen meals, and organic animal feed.

In order for a product to be labeled "organic", at least 95% of the products' ingredients must be organic and have been produced at certified organic production facilities under the regulations listed below. These products can also only contain approved substances or ingredients included in Annex II of the regulations, and they cannot contain any genetically modified organisms. In order for a product to be labeled as "produced with organic methods" it must contain at least 70% organic ingredients from a certified organic production facility. The 70% organic products also can only contain approved substances

and ingredients. The regulations also establish an organic seal to be placed on organic products that satisfy either the 95% organic or 70% organic categories.

Acceptable organic produce production methods are also detailed in the regulations. The regulations state that there is a two-year conversion period for any plot of land before sowing of organic seeds to yield organic produce. There is one exception for land in which perennial plants will be grown, and the conversion period is three years. Regardless of the conversion period, the first harvest off the converted land cannot be sold as organic. The conversion period was established so that any non-organic residues in the soil will decrease to insignificant levels.

Once the soil is converted for growth of organic produce, pesticides or other synthetic methods of pest control cannot be used. Flame weeding, establishing a nearby habitat for pests to live in, and selecting pest resistant species are the encouraged methods of pest control. If pests cannot be controlled through preventative measures, farmers are allowed to use substances on the approved substance list found in Annex II of the regulations, as long as the use is justified. Artificial fertilizers are also not allowed on organic farm soils. Instead, farmers are instructed to keep the land fertile through growing legumes, using green manure or organic livestock manure, or planting deep–rooting plants.

In order to produce organic crops, only organic seeds can be used on the land. The seeds must come from certified organic farms, may not be genetically modified, and can be treated only with the approved substances.

Livestock production is also regulated by the CODEX regulations. Production of organic livestock is essential to some kinds of organic agriculture, in that the livestock can provide organic manure. Just as in organic produce production, there are also conversion times for lands on which livestock will be raised. For pasturages, open-air runs and exercise pens in which non-herbivores (e.g. pigs) will be living, the conversion time is one year. For

pastures on which herbivores will be living, the land must follow the two-year conversion period dictated for crop production. There are also conversion periods for the animals themselves: one year for horses, cows and bison; six months for pigs and milk production; ten weeks for poultry; and six weeks for egg production. Once the land and animals are converted to organic, they can only be fed organic feed that does not contain genetically modified organisms. They must be provided with enough room so that overgrazing, erosion and disease will be minimized. Fattening procedures must be reversible, and preventative medicine must be practiced so that the animal's natural defenses will be able to fight off disease.

The EU organic production regulations clearly detail regulations governing organic production, yet the regulations never give a clear explanation of what they define "organic" to be. For this reason, these regulations, even though they are specific to production, are also slightly ambiguous.

3.2.2 United States Organic Production Regulations

The United States has two main sets of organic production regulations, the Organic Food Production Act of 1990, as amended, and the United States Department of Agriculture's (USDA) National Organic Program (United States Department of Agriculture [USDA], 2002). The NOP was created under the USDA's Agricultural Marketing Service to help farmers comply with the USDA's regulations and to help consumers reach a greater understanding of organic production. Summarized below are the definitions, labeling regulations, crop production regulations and livestock production regulations from the NOP.

The NOP clearly defines organic production as:

> "a production system that is managed in accordance with the Act [USDA Organic Food Production Act] and regulations in this part to respond to site-specific conditions by integrating cultural, biological and mechanical practices that foster cycling of resources, promote ecological balance and conserve biodiversity" (USDA, 2002).

The NOP prohibits biotechnological procedures such as cell fusion, micro encapsulation, macro encapsulation, and recombinant DNA techniques from organic food production.

The NOP also includes labeling regulations, but they are more descriptive than those of the EU. The most organic product that can be produced is a "100% organic" product. These products consist of a single ingredient, such as vegetables, or two or more ingredients that are also 100% organic. The next step down from 100% organic is "organic". Organic products must be at least 95% organic and any non-organic ingredients must comply with the National List of substances approved for and prohibited from use in organic production or handling, which is included as the National List of Approved and Prohibited Substances. The term "made with . . ." applies to a product that is 70-95% organic; up to three groups of foods may be specified on the label, such as "made with organic potatoes, chicken and rye flour". Also, if a food or food group is specified on the label, all of that food or foods from that group must be organic, for example, if the label says "made with organic vegetables" all the vegetables in the product must be organic. Lastly, organic products can be labeled "less than 70% organic" if a product adheres to this proportion, with no specified minimum. The percentage of organic food composition in an organic product is determined by the actual percent weight or fluid volume of organic ingredients in the final product. Products cannot be labeled "organic when available"; for instance, if organic apples were used in an applesauce when the producer has organic apples, but conventionally produced apples were used when he did not have organic apples, since that label would be misleading to consumers.

To identify products as organic, the products which are "100% organic" or "organic" are marked with the USDA organic seal. Products that are "made with . . .", "70% organic", or "less then 70% organic" cannot have the USDA seal on their packaging. The seal is a way for consumers to be sure that the products they are purchasing come from certified distributors who are in compliance with USDA regulations.

In addition to establishing clear labeling standards, the NOP also details crop production standards. Similar to the EU regulations, the NOP has a conversion period for the land, yet it is three years for all plots of land. The NOP also requires the plot to have boundaries and buffer zones surrounding it. To maintain soil fertility, it is encouraged that farmers implement "rotations, cover crops and plant and animal materials" (AMS, 2002).

Once the soil has been converted, the NOP, like the EU, only allows organically grown seeds or seedlings to be sowed onto the plot. Preventative pest management measures are encouraged, including establishing a habitat for the pests and introducing pest predators to the plot.

The NOP's livestock regulations are slightly more detailed than the crop regulations. Unlike the EU regulations, there is not a conversion period for the land on which the animals will live, yet there are conversion periods for the animals. The livestock must be "organically raised from the last third of gestation or hatching"; for poultry, the birds must be organically raised from their second day of life, and for milk production, the cows must be organically raised for one year before their milk is sold as organic. The livestock must be fed organic feed, and for those that graze, they must be provided with an organic pasture.

The EU and NOP animal care regulations are similar in that they both require preventative measures before any synthetic substance is administered to the animal. The preventative measures allowed by the NOP include supplementing the animals' feed with vitamins, minerals, proteins, amino acids, fatty acids, and fiber; vaccinating the animals if necessary; and housing the animals so that they are not crowded and disease is minimized. The NOP also requires that the farmer or production facility have a documented preventative medicine plan. However, if an animal falls ill, it can be given a substance in the National List of Synthetic Substances, yet after that the animal must be quarantined for ninety days in which none of its products can be sold as organic.

The NOP also includes some general production guidelines for handling facilities that do not actually produce the organic product. The handlers are prohibited from using ionizing radiation, adding non-organic ingredients, and using volatile synthetic solvents. Also, the handlers cannot further advertise the product by describing it as "pure" or "healthy" as these adjectives may be misleading to consumers.

To further ensure consumers that the products labeled "organic" are truly organic, the NOP specifies a procedure for testing for residues. Tests can only be conducted when certifying agents believe there is a need for them. Their "reason to believe" must be justified by a formal, written complaint about the producer. Justification for such testing could include seeing an open container of a prohibited substance at the production site, the production site being close to a source of contamination, or the products being unaffected by a pest by which nearby farms are affected. If a prohibited residue is found at the production site, the certification of production of the contaminated product is suspended. The EU regulations do not state a policy for testing of organic producers, nor specify sanctions for violations beyond suspension of certification.

The USDA's regulations and the NOP are a comprehensive resource for organic food and livestock producers and also consumers. The regulations and NOP clearly state definitions, any and all regulated areas, and a policy for those found noncompliant. These regulations are more thorough than the EU's regulations, yet both documents establish expectations and regulations for organic food production.

3.2.3 Effects of the Regulations on Farmers and Producers

Organic farming regulations have a variety of effects on farmers. On the one hand, they constrain their actions. On the other hand, they provide resources, such as training, subsidies and grants to help them change their methods of farming.

3.2.3.1 Certification

In order for these farmers to sell their products as organic, they first need to be certified, which is no easy task. Both the CODEX regulations and the NOP clearly state what is required of farmers to become certified. The CODEX regulations require farmers and production facilities applying for certified organic status to submit documentation of the premises to be certified and what will be grown or raised. This document must specify how the farmer or producer will comply with the regulations. Once the documentation has been received, the farm or facility must be inspected to ensure that it is compliant with the regulations. Upon certification of the farm or facility, inspections must be conducted at least once a year, and detailed financial and stock records must be kept, so that all practices can be traced. The NOP requires farmers or producers requesting organic certification to submit information similar to that required by CODEX. Under the NOP, an application detailing the applicant's business, any handling procedures and any other information necessary to determine that the farmer or producer will be compliant with the Act. A fee must also accompany the application. The application is then reviewed by a certifying agent who inspects it to ensure compliance with the Act, and an inspection is scheduled. If the facility is found to be compliant, it is certified. In order to keep up the certification, the facility must submit a revised production and handling plan, pay a fee and be inspected.

The certification process fees vary. In Denmark, inspection and certification were free until 1994. At this time, certifying agencies became private companies regulated by the government. Now producers receive a payment from the government for about half of the costs of inspection and certification and have to pay the other half themselves (Lampkin, Foster, Padel & Midmore, 1999). In Rhode Island, where the state Department of Environmental Management (DEM) is the USDA accredited certifying agent, inspection and certification are free of charge (Lawton, D. interview, February 5, 2003). In Massachusetts, where a private company, Massachusetts Independent Certification, Inc. is responsible for

most of the certifications, the fee for certification is mandated by the NOP and varies. The fees range from US$290 for a farm that grosses US$500 or less and rises to US$1,875 plus a percentage of the revenue for a farm that grosses above five million dollars.

Both the United States and Denmark have aid programs for farmers wishing to transition or certify their farms. Denmark introduced an aid program for organic farmers in 1987 to help them with the costs of conversion and educate them about organic strategies. Farms that were helped under this program were required to be certified organic within six years. By 1993, 257 farms and 1,437 hectares were supported.[2] In terms of educational assistance, the Danish government also offers many levels of courses from optional courses for farmers and courses at all levels of education from high school to post graduate (Lampkin, et al, 1999). To help farmers sort out the certification process and make it easier for them, it was recommended in the Danish "Action Plan II: Developments in Organic Farming" (Ministry of Food, Agriculture and Fisheries, 1999) that "Traveling Units" of organic farming experts be amassed and dispatched to newly established organic farms. Further help with the certification and conversion process is provided by the Danish government in many forms, including: organic producer associations; agricultural advice services organized by farmers; conferences; seminars; and demonstration farm networks of experienced and commercial farms (Lampkin, et al, 1999). Also, the action plan recommended that a National Organic Fruit Grower's Advisory Service be established under the present National Fruit Advisory Service, to aid organic fruit producers in their certification process.

In the United States, it was deemed a "conflict of interest" for certifying agents to advise farmers wishing to be certified (Kuepper, 2002). American farmers wanting to be certified organic, thus, do not have a governmentally funded support network, other than subsidies. However, the Northeast Organic Farming Association (NOFA) offers financial

[2] For more information on government subsidies, see "Government Subsidies" on page 27.

and educational assistance to farmers. NOFA offers a US$1,000 scholarship to farmers seeking certification. NOFA in Massachusetts and Connecticut also help farmers apply for Sustainable Agriculture Research and Education (SARE) grants from the USDA, to further help the farmers with certification and transition costs (Rawson, J. interview, February 10, 2003; Duesing, B. interview, February 12, 2003). Also for financial assistance, the U.S. government will refund farmers 75% of their certification costs up to $500 (Franczyk, D. interview, February 10, 2003).

In terms of educational assistance, NOFA provides advice, educational manuals and conferences for the farmers (von Ranson, J., interview, February 7, 2003). In addition aid with grants, NOFA in Connecticut has begun to set up Northeast Organic Network (NEON) of researchers and exemplary organic farmers for other farmers to learn from (Duesing, B. interview, February 12, 2003). NOFA in New Hampshire has also begun a networking program with the motivation of getting more organic farmers to market their products to restaurants (Pletcher, L. interview, February 10, 2003).

3.2.3.2 Compliance

Once the farmers have been certified, their next challenge is to remain compliant with the regulations. Compliance with fertilizer methods and pest management are two of the most difficult tasks an organic farmer deals with. Farmers are not allowed to use any synthetic substances in the production of their product. Yet they must be able to keep their soils fertile and relatively weed and pest free, often through crop rotation and cover crops (Friesen, 2001, Holtzman, 2001). A 1995 survey of organic fruit growers, conducted by the USDA's Economic Research Service, concluded that 70% of organic fruit growers use mechanical tillage for weed control, and 39% planted ground cover as living mulch as a means of weed control (Fernandez-Cornejo, Penn & Newton, 1997).

Organic farmers must also use unconventional methods of pest management. Often crops such as arugula and bok choy are planted in the spring to attract flea beetles so that the beetles will feast on those plants instead of their crops (Voiland, interview, February 12, 2003). Also, a habitat for pests' predators can be established, possibly through birdhouses, bat boxes, raptor perches and wasp houses on their farm to attract predators that will eat the pests (Mudd, 2001). Most organic farmers keep their soils fertile and crops free of pests through these or similar means. Although ridding their farms of pests through natural predator interactions, and keeping the soil fertile through crop rotations are not as quick and easy as using pesticides or synthetic fertilizers, these farmers find their methods very successful.

A second problem area for farmers in keeping compliant is the raising of livestock or processing of meats. In Denmark, an organic chicken farm was unable to begin organic broiler chicken production because there was no organic feed available (Ministry of Food, Agriculture and Fisheries, 1999). In the United States, having the necessary feed to raise organic animals is less of a problem. The major problem is finding a processing facility that is certified organic. Rainbow Farms, a small beef producer in the U.S., realized that finding a compliant processing facility would be too difficult. Instead they purchased a slaughtering plant and processor and made it compliant for their beef production (Berton, 2001). Until organic processing facilities are widely available, organic livestock producers will struggle to make a profit from their enterprise, even if they are certified organic.

3.2.3.3 Labeling

While certification and compliance can impose burdens on farmers, there are benefits to be realized from these processes. Trust in the seal, whether it is the USDA organic seal, the Danish Ø-mark, or another country's organic seal, is a major factor in consumer demand for organic products. Weir and Calverley (2002) concluded in an article in the British Food

Journal that organic food labels must be easy to recognize, trustworthy and guarantee that the food is produced through organic means. In Denmark, 75% of consumers who are familiar with the Ø-Mark are confident that the products on which it is placed are certified organic. As a result of the confidence placed in the Ø-Mark, the demand for organic products in Denmark has increased (Ministry of Food, Agriculture and Fisheries, 1999; Hansen & Nielsen, interview, March 26, 2003).

Yet in the United States, there is some confusion as to what the USDA organic seal really means. A year 2000 survey conducted by International Communications Research/ICR for the National Center for Public Policy Research (May 2000) surveyed 1029 American citizens, which was deemed enough to be representative of the entire population. The results of the survey include: 62% believe that foods marked with the seal are healthier because they are not produced with pesticides; 68% think the foods are safer; and 69% concluded that these foods are better for the environment (National Center for Public Policy Research, May 2000).[3] One goal of the NOP's clearly defined labeling standards was to rid American consumers of this confusion so that they would be able to trust that products with the USDA organic seal are truly organic. The NOP is too young however to judge its success in this endeavor. Furthermore, the USDA seal only states that a product is grown according to the national standards, and does not impart any information about the social practices used to create it.

In general, while some small farmers elect not to maintain their certification because of the paperwork and recordkeeping (Perkins, interview, February 12, 2003), the majority of farmers and producers that we spoke to both in the United States and especially in Denmark saw regulations as a positive force in engendering consumer confidence (e.g. Krohn, interview, April 2, 2003).

[3] Although The National Center for Public Policy is an unabashedly conservative think tank, we feel that this survey was conducted in a scientific and professional manner and that it accurately represents confusion regarding the meaning of organic labels.

3.3 The Economics of Organic Foods

Although a fast-growing market has been established for organic foods, both in the United States and Europe including Denmark, organic foods are generally sold at a higher price and sometimes at more than double the cost of their conventional competitors (Park & Lohr, 1996; Dimitri & Greene, 2002; Market Research Centre, 2000). This section will explore the factors that cause this markup, the use of government subsidies to offset these added costs, and the willingness of consumers to pay a premium for organic foods.

3.3.1 Added Costs of Organic Agriculture

The main reasons for higher organic food prices are lower yields and conversion periods. Another economic factor affecting the price of organic foods is supply and demand.

Organic farming has generally produced lower yields than conventional farming of similar products. While organic outputs in Europe, and especially in Denmark have generally remained comparable to what they would be if only conventional farming was used, (1.4% decline in tonnage produced for wheat in Denmark, 0.8% for potatoes), there have been instances of large drops in yields (19.4% in Kg/Ha for Spanish oranges) (Zanoli & Gambelli, 1999; Igual & Izquierdo, 2000).[4]

The second reason for the higher prices of organic foods is the loss that farmers must take during the conversion period (Henry Doubleday Research Association, 2002). During the conversion period, agricultural products cannot be sold as organic, however they do not enjoy the protections from pests or benefits from fertilizers that conventional products do.

[4] Zanoli and Gambelli used an ex-post or "what-if" simulation to compare the total agriculture production for European countries to what their estimated production for the year would have been if all of the farms were using conventional methods. Their data is from government statistics. While their research provides an interesting snapshot of the change in yields, a shortage of data limits the significance of their findings. For example, they often could only obtain organic farm data for one year, making their results prone to changes from year to year, particularly with respect to the weather. Also, the crop rotation schedules used by organic farmers vary from those used by conventional farmers, resulting in another source of variation.
Igual and Izquierdo, in contrast, perform a side-by-side comparison of organic and conventional citrus farms in Valencia. They were able to collect more detailed economic data, and as a result their findings seem more significant.
While the two studies use similar units of data for their analysis, there are several other differences between their studies that make comparison impractical.

While farmers can often collect subsidies or other government assistance during this period, rarely do these cover the full loss.

Finally, the laws of economics raise the price of organic foods. Park and Lohr (1996) detail the effects that supply and demand have on wholesale organic food pricing. They modeled the markets forces for organic broccoli, carrots and romaine lettuce. They concluded that while supply problems occasionally caused price increases, the largest factor in price premiums is consumer demand, which has been growing and is expected to continue. For this reason, they infer that organic price premiums will not disappear as more producers enter the market.[5] Researchers at the Technical University of Denmark are currently studying the causes of price premiums in between wholesalers and retailers.

Competition is another component of supply. Anecdotal evidence has shown that while specialty supermarkets in the U.S. such as Bread and Circus offer a much greater breadth of organic foods, their depth of organic brands for each product is limited and is similar to the selection of organic foods found at conventional supermarkets. Our research has not found any formal studies of organic selection either in the United States or in Denmark. NOAH is greatly concerned about the effects of limited consumer choice on competition, and we will devote a great deal of our project to studying this area.

Despite the economic barriers that raise the price of organic farming, research has shown that organic farms can be at least, as profitable, if not more so than their conventional competitors, even without price premiums (Greene & Kremen, 2002). One reason for this is because organic farmers do not need to pay for fertilizers or pesticides. However, the savings in pest control can be easily offset by the cost of purchasing manure (Igual & Izquierdo, 2000). Both the savings and added costs of organic farming vary dependent on the crop(s)

[5] Price premiums are an inherently complex topic. It could be said that the lowering of price premiums in Denmark in 1994 caused an increased demand. While this statement is likely correct, price premiums are can be set to either stimulate growth (as was the case in Denmark) or to increase profits as was the case in the Park and Lohr study.

being grown and the diversification of the farm, particularly with respect to livestock. However, organic agriculture (as the large commercial enterprise that it is today) is still a new phenomenon. It is therefore likely that organic agriculture will become more efficient in the future.

3.3.2 Government Subsidies

Modern agriculture cannot be considered without examining the role of subsidies, which accounted for 31% of total farm receipts in OECD countries in 2001 (Organisation for Economic Co-operation and Development, 2002).[6] While most agricultural products receive subsidies to a certain degree, subsidies for organic food production have become widespread throughout the EU, and are financed by both the EU and member governments. An analysis of country reports from the Research Institute of Organic Agriculture (2002) reveals that all European countries except for Cyprus and Yugoslavia have organic subsidies. These subsidies were introduced in the late 1980s and early 1990s to increase organic food production.

Finland instituted a subsidy in 1990 with goal of converting 6% of all arable land to organic farming by the year 2000 (Research Institute of Organic Agriculture, 2002; Pietola & Lansink, 2001). The program was so successful that it was temporarily suspended in 1998. Pietola and Lansink studied 948 farms in Finland between 1994 and 1997 (2001). They found that income-neutral assistance that decreases price support while compensating farmers through subsidies can increase the probability of conversion to organic farming. The study also found that large farms and diversified farms are more likely to convert to organic farming.

[6] OECD members include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States ("Organisation for Economic Cooperation and Development, 2003).

Sweden began offering a subsidy in 1989 (Lohr & Salomonsson, 1998). The effectiveness of these and other organic food subsidies has been the subject of economic research in recent years. Lohr and Salomonsson studied a sample of 550 Swedish farmers who accepted the 1989 subsidy (1998). They found that farmers who have not already converted to organic farming were more likely to do so in the following situations: when the farm does not have a diversity of livestock and crops; when there is adequate information about organic farming available; when the farmers are satisfied with the inspection process for certification; and when the farmers sell to few outlets.

3.3.3 Consumer Willingness to Pay

When organic foods first emerged in the U.S., they were generally the province of specialty food stores such as Whole Foods and Wild Oats (Richman, 2000). However, as U.S. annual organic food sales reached $7.8 billion in 2000, conventional supermarkets secured over half of the sales (USDA, 2002). As grocers ranging from supermarkets to discounts stores such as Wal-Mart and Costco grappled with the emerging organic food markets, a large amount of research was conducted to determine if and how much of a premium consumers would pay for organic foods.[7] These studies have found that consumer willingness to pay (WTP) a premium for organic foods varies with respect to the consumer's age, income, and gender.

Studies from both the U.S. and Germany have shown a bimodal relationship between age and WTP. The Hartman Group found that the "True Naturals," the consumer segment with the highest probability of purchasing organic foods, contained a higher percentage of people over 40 years of age (79%) than the entire sample (65%) (Thompson, 1998). The Hartman study also found larger proportions of people under 35 in the "Young Recyclers," a group "very interested in purchasing organics but with less disposable income." However,

[7] A concise summary of the eleven consumer studies is found the USDA's *Recent Growth Patterns in the U.S. Organic Food Market* (2002).

these results do not appear to hold in a study of Berlin residents (Moon, Florkowski, Brückner & Schonhof, 2002). The study showed that the majority of participants under the age of 40 were willing to pay premiums in the range of 21-30% or over 30%. This includes over one-third of 25 year-olds sampled who were willing to pay higher premiums in the latter category. A third survey of New Jersey shoppers suggests that younger shoppers are more likely to purchase organic foods (Govindasamy & Italia, 1999). It appears that while there are not clear trends in age, there are peaks in the twenties and the forties. It remains to be seen if these peaks will shift as the generations grow older. Also, research should be conducted to investigate if the motivations for purchasing organic food (i.e. environmental concerns, health benefits) shift with generations or are endemic to certain age groups.

As with age, there is a bimodal trend relating income to organic food purchases. The Fresh Trends study found that consumers with incomes under $25,000 and above $50,000 were more likely to purchase organic produce than those with incomes between those ranges (26% and 30%, respectively, compared to 22-25%) (Thompson, 1998). The Hartman study also found an increased presence of households with incomes under $25,000 in the "True Naturals" (43% compared to 36% in total sample) (Thompson, 1998). Govindasamy & Italia (1999) found similar results, noting that households with income less than $30,000 were only 16% less likely to pay a 10% premium for organic produce than households earning $70,000. In comparison, households with incomes between $30,000 and $49,000 were 26% less likely to pay the same premium.

Studies show that women are more apt than men to purchase organic foods, however there is not a large difference in these purchasing attitudes. Govindasamy & Italia (1999) confirmed the results of several studies, showing males 12% "less likely to pay a 10[%] premium for organic produce" than women.

The effect of household size and children on tendencies to purchase organic food has been accorded varying degrees of significance. A Danish study found that "household size is positively correlated with buying propensity for organic foods" and those families with small children are more likely to buy organic products as compared to families without children or with teenagers (Weir, et al., 2002). An American study confirmed the findings that households with children under eighteen are more likely to purchase organic foods (Dimitri & Greene, 2002). However, the Fresh Trends study found that the percentage of households purchasing organic foods varies only slightly and in the opposite direction of Weir's findings (25% of households with children compared to 27% without) (Thompson, 1998). Also, Govindasamy & Italia (1999) found that "the likelihood of paying the premium [10%] decreased by 8[%] for each additional person residing in household." This can be explained by the fact that larger households generally have less discretionary income per person.

While it can be shown that certain groups are more apt to pay premiums for organics, these premiums do have a negative affect on many consumers (Lohr, 2001). These premiums vary across Europe, from a low of 35% in Denmark to a high of 67% in Germany (Lohr, 2001). Even in Denmark, which has been a leader in the organic food sector, price premiums are a significant inhibitor to purchasing foods and will need to be addressed if organic foods are to increase its market share (Weir, et al, 2002).

3.4 Role of Small Farmers in the United States

Through interviews with several experts from NOFA in many New England states, farmers in Massachusetts and grocers in Massachusetts a picture of the current roles of farmers and producers in the United States was created. From the interviews we conducted, it seems as though small farmers play a significant role in local economies. Recently a local organic food movement has begun in which many consumers are beginning to purchase locally grown products (Duesing, B., interview, February 12, 2003). The smaller farms offer

more local benefits than the large producers because they promote and sustain local economies (von Ranson, J., interview, February 10, 2003). Small farmers were described by Jonathon von Ranson as "community glue" because of their close ties to consumers and the economic and societal benefits they bring (interview, February 7, 2003).

Advocates of local organic farming believe that small farms usually are more responsible in their production methods than large producers. With local farms, the tendency is for consumers to know the farmer and the quality of the product. Since farmers and consumers are so closely tied, the farmers have a greater responsibility to uphold (von Ranson, J., interview, February 7, 2003). Small farmers also typically work on their farms, taking pride in their final product, and assuring the utmost quality in their products (Rawson, J., interview, February 10, 2003).

In terms of competition, the large producers tend to out-compete small farms in large retail food outlets like supermarkets. Yet the small farmers have a niche for their products, specifically at farmers' markets and through community supported agriculture programs (CSAs) (Pletcher, L., interview, February 10, 2003). Generally, small farmers market their products through farmers' markets, CSAs, farm stands, cooperatives, to colleges, to restaurants and wholesale supermarkets or through small natural food stores (Duesing, B., interview, February 12, 2003; von Ranson, J., interview, February 7, 2003). Some small farmers find selling to wholesale outlets to be unappealing because the products are often transported from the farm to a warehouse and eventually to the supermarket, wasting energy and degrading quality in the process (Duesing, B., interview, February 12, 2003).

3.5 Role of Large Producers in the United States

All of the individuals interviewed from NOFA agreed that large producers negatively affect small farmers. The large producers tend to be profit driven and not interested in sustainable agriculture or upholding a social responsibility. They tend to "press

the boundaries of what substances can be used for weed and pest management" (von Ranson, J., interview, February 7, 2003).

Large producers can leverage their economic advantages and extensive financial resources to drive small farmers out of the market. With the adoption of the NOP, the certification process was centralized under the USDA. It is Bill Duesing's opinion that it is an "unstated policy of the USDA" to drive small farmers out of business because it is easier for the USDA to "deal with large producers" and a "hassle to certify the small farmers" (interview, February 12, 2003).

Large producers also influence products available in the market by only investing in the most profitable products (von Ranson, J., interview, February 7, 2003). In this manner the large producers can exercise control over what consumers eat. Advocates of local organic farming believe that products from large producers have less holistic value than those from a small local farmer. For example, large producers often transport their products many miles. For these transported products, 81% of the price covers transportation costs (Duesing, B., interview, February 12, 2003). Freshness and flavor also decrease in transit. Additionally, products from large producers may not be grown in a socially responsible manner (von Ranson, J., interview, February 10, 2003). Regardless of the quality of these products, large producers typically market their products through wholesale outlets such as supermarkets (Rawson, J., interview, February 10, 2003).

3.6 The Current State of Organic Foods

While there has been much growth in the organic food sector for the United States and Denmark, each country has developed in a unique way. This section will present the current status of each market.

3.6.1 Denmark

Consumers in Denmark purchase organic food for a variety of reasons. Weir, Hansen, Andersen and Millock (2002) found that many consumer buy organic foods because of health concerns. The main concerns were salmonella and pesticide or medicine residues. However, Danes are not as concerned about food health and safety as the Germans, even though Denmark's organic food consumption has consistently outperformed Germany's.

There also appears to be a change from these traditional concerns to an expectation of higher quality (Hougaard & Jeppesen, interview, April 8, 2003; Poulsen, interview, April 7, 2003). However, environmental and health concerns still lurk below the surface. Interviewees from both academia and industry frequently identified an outbreak or scare involving pesticides or an illness similar to mad cow disease as an event that could trigger increased growth in the Danish organic food market (Hansen & Nielsen, interview, March 26, 2003; Christiansen, Jacobsen & Jacobsen, interview, April 1, 2003; Hougaard & Jeppesen, interview, April 8, 2003).

Of particular interest is the dichotomy between frequent and occasional consumers of organic food. Although most Danes buy organic food, 80 percent of organic food is purchased by 15 percent of consumers (Organic Monitor, 2002). The differences in attitudes between frequent and occasional consumers of organic food would be an interesting topic for future research.

In Denmark, a variety of products have found success in the organic market. Figure 2 shows the market shares for the top eight products in terms of market share for the first half of 2001. Figure 3 shows which products account for the majority of organic sales. While Weir & Calverly (2002) found that meat products were successful in the Alps and most of Scandinavia, meat has not enjoyed a large market share in Denmark (Ministry of Food, Agriculture and Fisheries, 1999).

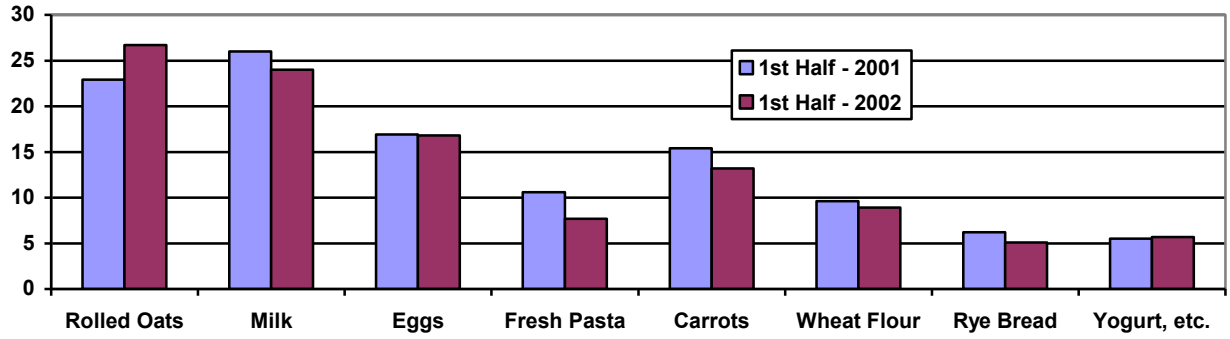


Figure 2: Danish Organic Market Shares 2001-2003 (Source: Økologisk Landsforening)

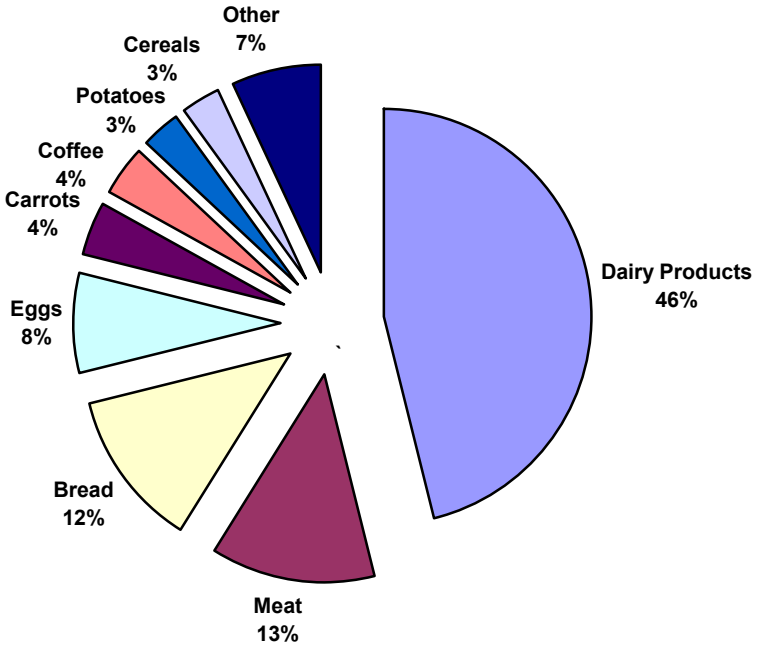


Figure 3: Danish Organic Food Sales by Product Category (*Source:* Økologisk Landsforening*)*

In Denmark, supermarkets have played a leading role in the organic food market since the mid-1990s. Some supermarkets have taken aggressive steps to promote organic food sales through advertising and price discounts (International Trade Centre, 1999). As a result of this and strong consumer interest, supermarkets now account for over 70% of organic food sales (International Trade Centre, 1999). The leading stores are Irma, which is owned by FDB-COOP, and ISO (International Trade Centre, 1999). SuperBrugsen has also taken steps to promote its organic food offerings as evidenced by their full pages advertisements in

Copenhagen newspapers during the week of March 31, 2003 and by designating 70 of 295 of their stores as "Green Shops" that emphasize organic foods (FDB Annual Report, 2001).

Supermarkets are even more important because of the geography of Denmark. Consumers in Copenhagen are several hours away from the farms in Jutland where most fresh food is produced. As a result, community supported agriculture where members of the community equally invest in the farm with the farmer seem impractical for Denmark's urban population.

"Box schemes", direct marketing campaigns that ship fresh vegetables to consumers on a regular basis, have also appeared during the past few years (Hansen, M. W. & Nielsen, T., interview, March 26, 2003). Their success has been mixed and they have been tried, albeit unsuccessfully by other organic sectors (e.g. pork) (Borgen, M., interview, April 8, 2003). Box schemes may enjoy future success because Danish consumers have indicated that they are interested in knowing more about the farmers that grow their food (Hansen, M. W. & Nielsen, T., interview, March 26, 2003).

3.6.2 United States

In the United States, "health and nutrition" is the most popular reason for purchasing organic foods (Dimitri & Greene, 2002). While 66% of respondents identified health concerns as a reason to purchase organic food, taste (38%), environment (26%) and availability (16%) followed close behind.

Organic produce has established itself as a dominant product in United States. While market share data is not available as it is for Denmark, Figure 4 suggests that there are some major differences in the popularity of organic products purchased in the United States and Denmark.

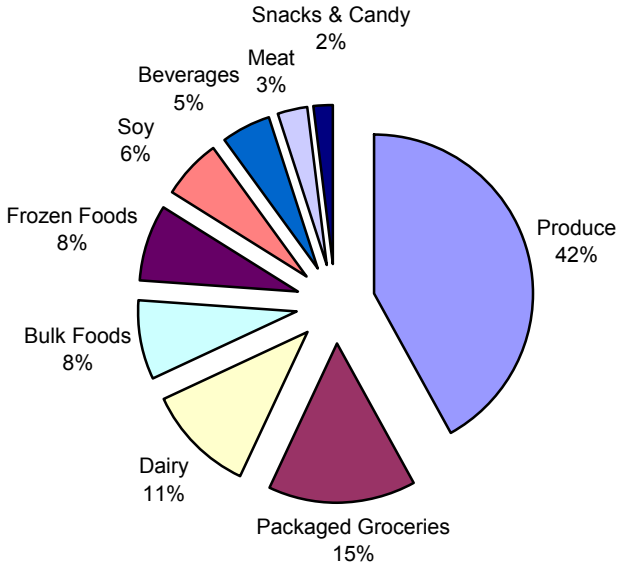


Figure 4: "U.S. Organic Food Sales by Product Category" adapted from *Facts and Stats: The Year in Review* (Myers & Rorie, 2000)

Because of the popularity of organic produce and the geography of the U.S., there are a variety of distribution chains beyond the supermarket (Dimitri & Greene, 2002). Figure 5 shows the distribution chains for fruit and vegetables. "Fresh" products, those which require no processing, can have a short marketing chain of only two parts, or as many as four, as the paths below illustrate.

Fruit and vegetable marketing chains:

Fresh produce:

Farm – shipper – wholesaler – natural foods retailer

Farm – shipper – wholesaler – conventional retailer

Farm – shipper – specialty broker – retailer

Farm – shipper – natural foods retailer

Farm – shipper – conventional retailer

Farm – consumer farmers markets, roadside stands, U-pick, community supported agriculture

Figure 5: "Fruit and vegetable marketing chains" from Recent Growth Patterns in the US Organic Food Market (Dimitri & Greene, 2002)

In the last path the farmer sells their products directly to the consumer, cutting out the middleman, and increasing their profits. Because organic fruits and vegetables are the largest organic crop produced this direct approach can be very lucrative for farmers. Also included

in the "fresh" category are grains, oilseeds and legumes. These products are used as inputs for manufacturing of edible goods such as soymilk, bread, and tofu. The marketing chain is a bit different for these goods and could have as few as three parts. The most common system includes the farmer, a cleaner, a manufacturer, and a distributor. Possible parts include cooperatives, brokers, and processors.

For organic foods that require processing of one sort or another, the marketing chain begins to lengthen a bit. Organic products that require processing include: frozen vegetables and entrees, pastas, canned vegetables, sauces in jars, shelf stable entrees, dairy products, meat, poultry, and eggs (Dimitri & Greene, 2002). Because of current regulations regarding processing of organic foods many organically produced products end up merely as "organic ingredients" in a food. The marketing chain for processed organics is typically more than three steps, involving farms, manufacturers, wholesalers, and retailers. The length of this chain often depends on the facilities for a particular farm, especially in the case of beef, poultry, eggs, and dairy.

The number of parts for a marketing chain is related to the profit that the farmers earn for their product. A community supported agriculture program that is beneficial for consumers and farmers is ideal for fruits and vegetables, but is impossible for processed foods. For those foods that require processing, reducing the number of intermediaries helps the farmers, as well as helping to maintain the integrity of social philosophies.

Where consumers can purchase organic foods is dictated by where farmers and producers market their products. Farmers will sometimes establish a CSA. A CSA works by consumers purchasing a share of the farm in exchange for fresh produce weekly (Berton, 2001). In 2000, sales through CSAs or farmers markets accounted for 3% of all U.S. organic food sales (Myers & Rorie, 2000). Similar to selling through a CSA, some farmers opt to market their products through a cooperative (co-op). The major difference between a CSA

and co-op is that to be a member of a CSA one pays the farm directly in exchange for the crops it will produce. Whereas, to be a member of a co-op, one pays a membership fee and is allowed to shop at the co-op. Both options may require members to volunteer their time at the farm or co-op. Sales through natural food cooperatives also account for 3% of all organic food sales in the U.S. (Myers & Rorie, 2000).

But not all consumers have access to a CSA, co-op or even a natural food store. These consumers now have access to organic foods as many supermarkets carry organic foods. In the year 2000, organic products were available in 73% of mainstream grocery stores in the United States. Sales of organic products at supermarkets hold the largest share of all organic product sales in the U.S., 44%. Natural food supermarkets have a slightly lower share of organic food sales, 31%. Lastly, smaller natural food stores account for 12% of organic product sales (data are summarized in table below) (Myers & Rorie, 2000).

TYPE OF OUTLET	**SHARE (%)**
Mass-Market Outlets	**49**
Supermarkets	44
Other mass market*	5
Health & Natural Product Sales	**48**
Natural food supermarkets	31
Natural food stores	12
Natural food cooperatives	3
Supplement chains/Supplement stores	2
Farmers' Markets/CSAs	**3**
Total	***100***

* Drugstores, mass merchandisers

Table 1: United States Organic Food Sales by Type of Retail Outlet (Myers & Rorie, 2000)

Since 1990, the organic foods market has grown 20% each year in the United States. The year 2000 was a landmark year for organic foods, with conventional supermarkets surpassing the market share of natural food stores with 49% and 48% respectively, as illustrated in Figure 6. This statistic seems to indicate that organic foods are moving into a mainstream market; it should be noted that this figure doesn't necessarily indicate a decrease

in sales of natural product retailers. Their sales continued to increase at a fairly constant rate as part of the overall increased market.

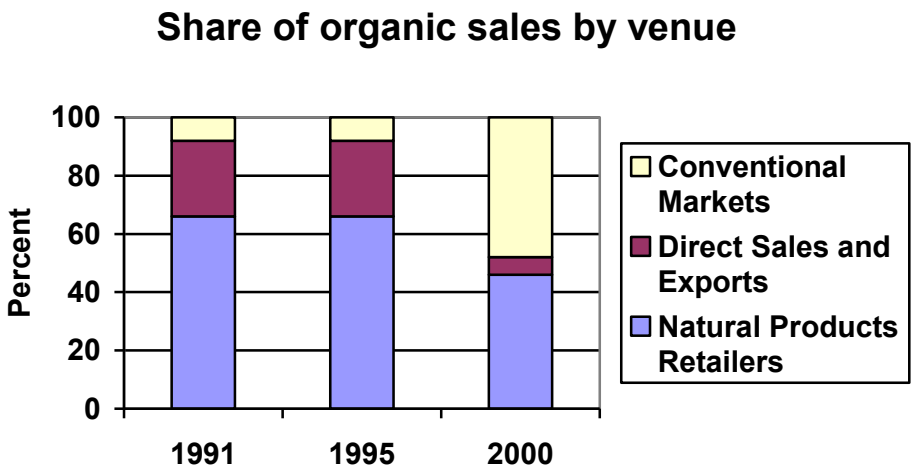


Figure 6: "Share of organic sales by venue" reproduced from *Recent Growth Patterns in the U.S. Organic Food Market* (Dimitri & Greene, 2002)

3.7 Summary

Through our background research conduct in the two months prior to our arrival in Denmark and in the first few weeks in Denmark, we have made the following findings:

- There is a compelling case for both organic agriculture and for small farmers and producers. We find that they often have more holistic visions and practices, but because of economic factors, have difficulty competing with larger companies in a supermarket-oriented market.
- There is variance among the selection of organic food between supermarkets in the United States. There are many factors that influence this, including: the socioeconomic characteristics of the store's location, the philosophies of the supermarket, and the selection of organic food available through suppliers.

In response to these findings, we incorporated two additional questions into our project. First, what roles do small, idealistic producers play in the organic food market and what

practices do they employ to remain competitive? Second, what selection of organic food is available to Copenhagen consumers and what factors influence this level of selection?

4.0 Market Dynamics Background

In this project, our greatest interest was the dynamics between supermarkets and producers of varying size and ideologies. To understand these interactions, knowledge of network theory was helpful. Network theory, once the province of computer science and mathematics, has grown in scope in recent years, and is now used to analyze the processes of environmental innovation to global terrorism (Boons, 1998; Rothstein, October 20, 2001).

A network is defined by Chisholm as "a set of autonomous organizations that come together to reach goals that none of them can reach separately" (Boons, 1998). This certainly applies to the relationship between producers and supermarkets. Neither can function effectively without the other. This network could be broadened further to include consumers, government, consumer and environmental organizations, and farmers, as Finke, Gil and Rivard (2000) did in their analysis of genetically modified organisms in Denmark, but this project will maintain a narrower focus and only target producers and retailers.

From the previous paragraph, it should be obvious that there are dependency relations in both directions between the producers and the supermarkets. For example, if a producer were to suddenly stop manufacturing beef, the supermarkets that purchase from it would have shortages of steaks, etc. Similarly, if a producer's main customer were to go out of business, the producer would have large problems including oversupply and loss of revenue. These dependencies are not necessarily symmetrical (Boons, 1998; see also Morris, 1988). This was been apparent from our research in the United States, where supermarkets can exert a large influence on farmers (Voiland, interview, February 12, 2003). Because of these dependencies, both supermarkets and producers develop strategies to decrease their dependencies and increase their autonomy (Boons, 1998). This may include developing purchasing/selling relationships with multiple producers/supermarkets or increasing market share in order to have greater leverage in bargaining.

Another method of dealing with dependencies is to develop coordination mechanisms to ensure that needed products (i.e. food or new products) are delivered on a regular, predictable basis. Boon (1998) described six of these, differentiated by the number of actors involved and the level of formal integration.

Degree of Formal Integration	Bilateral Mechanisms	Multilateral Mechanisms
Low	**Market**	**Monitoring**
	- Contracts	- Information Exchange
		- Cartels
Intermediate	**Obligational Network**	**Promotional Network**
	- Long Term Subcontracting	- R&D Alliances
	- Joint Ventures	- Coalitions
High	**Hierarchy**	**Association**
	- Vertical & Horizontal Integration	- Trade Unions
	- Conglomerates	- Trade Associations

Table 2: "Typology of Coordination Mechanisms" adapted from Boons (1998)

The lowest level of bilateral mechanisms is the market. This serves as the basis for Western economic systems. Actors exert little control over the actions of each other, as both sides are free to walk away from an offer (Kotler, 1997). Furthermore, unless stipulated otherwise, contracts can be broken at anytime, and are not necessarily renewed. The next level of bilateral integration is an obligation network. These mechanisms are open ended commitments. At the highest level of integration are hierarchies. These involve formal agreements and structures to orchestrate actions (Boons, 1998).

Multilateral coordinating mechanisms involve three or more actors. The lowest level is monitoring. An example of this is the exchange of sales information between fruit producers. Above this is the promotional network. An example of this is the cooperation between producers and supermarkets to promote sales of a new type of cheese. At the top, in terms of formal integration, is an association. An example of this would be alliance of dairy farmers working on issues such as legislation that affect their entire industry (Boons, 1998).

Within the Danish organic food industry, we expect to see the full panoply of these relationships. We are particularly interested to see what types of relationships can yield the best results for small, idealistic producers.

5.0 Analysis of Market Data

This section contains analysis and interpretation of data gathered from our market visits. Appendix C contains information about the stores visited the products recorded. Additional information is included in the Microsoft Excel and Access files on the CD-ROM produced for this report or by contacting the authors.

The information served as the quantitative basis for conclusions and elucidated some issues that were subsequently discussed in interviews.

5.1 Sample Statistics

Chain/Type	Number of Stores Visited	Percentage of Visits
Fakta	3	8.6%
Irma	9	25.7%
ISO Supermarked	2	5.7%
Kvickly	1	2.9%
Netto	5	14.3%
SuperBest	2	5.7%
SuperBrugsen	6	17.1%
Independent Health Food Stores	6	17.1%
Department Store Supermarkets (Magasin)	1	2.9%
TOTAL	35	100%

Table 3: Representation of Supermarket Chains in Sample

Thirty-five stores were visited by our team between March 26, 2003 and April 14, 2003. All visits occurred on weekdays between 9.00 and 17.00. Due to time constraints, it was impossible to visit all of the fifty-six stores that we originally identified. There were a variety of reasons for not visiting stores. Some had closed or moved since the publication of the telephone directory. Our team was unable to locate a few others. The overriding reason for not visiting stores, however, was a lack of time. As we neared the ending of the surveying, we had to prioritize certain chains, and as a result, we excluded a number of SuperBrugsen and Irma stores because we already had visited a large number of stores from

those chains (six and nine, respectively).[8] A complete listing of the stores visited and not visited and the reasons for not visiting individual stores is available in Appendix C.

The stores represented a variety of retail food outlets in the Copenhagen area. Table 3 shows the representation of the major supermarket chains in our survey.

5.2 Selection Statistics for Ketchup

Ketchup exhibited the most diversity amongst the products that we examined. A total of eleven brands had offerings for conventional ketchup. Six brands of organic ketchup were available. Interestingly, only one brand of organic ketchup was certified by the Danish government, indicating that most were likely produced in other countries and imported to Denmark. This is because of the requirement that Danish controlled organic products must be produced or packaged in Denmark. Some organic brands carried certifications from other countries while others simply had the word "organic" on the label.

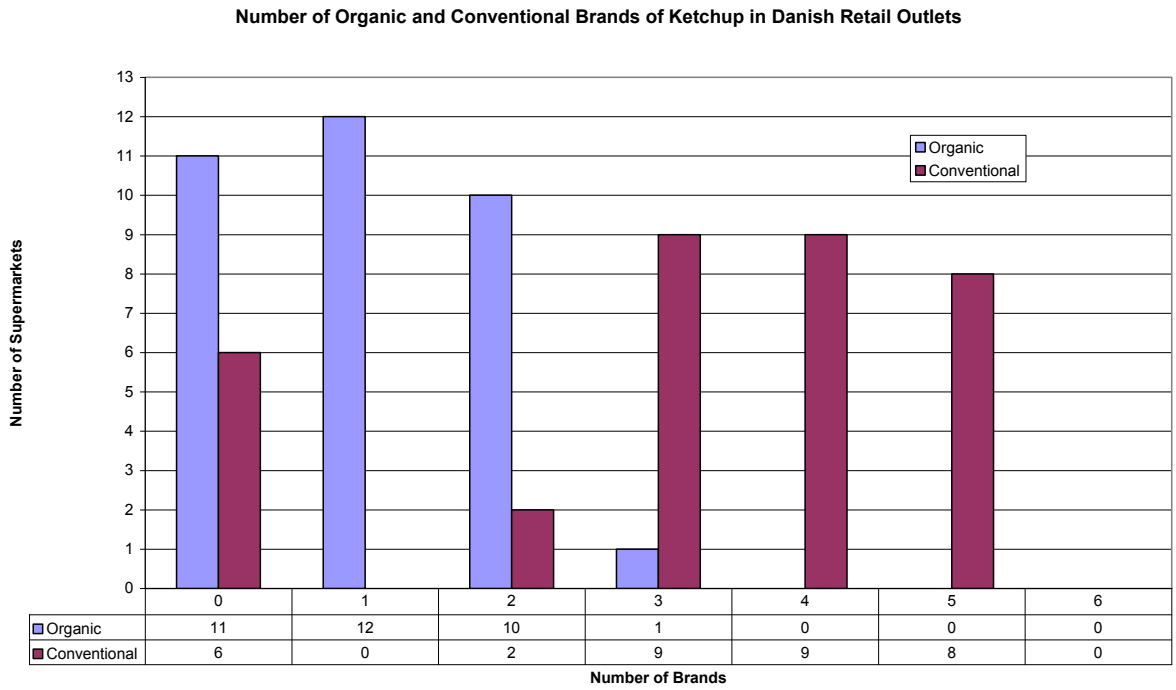
	Conventional										Both	Organic				
Store Name	Bähncke	Beauvais	Cervera	Graasten Salater	K	Kend I Veren	Ketchup	Long Island	Mutti	Tomat Ketchup	Heinz	Helios	LaBio Idea	Rømer	Urtekram	Zwergenwiese
Supermarkets																
Fakta		X					X				X					
Irma	X	X					X		X	X	X O				O	
ISO Supermarked	X	X	X			X				X	X O					
Kvickly	X	X						X		X	X O					
Magasin	X	X	X		X						X O				O	
Netto	X	X				X					X					
SuperBest	X	X		X	X						X O					
SuperBrugsen	X	X						X		X	X O				O	
Health Food Stores																
City Helsekost												O			O	
Natur og Sundhed															O	O
Solhatten															O	
Solsikke Helsekost													O	O	O	
Spidsroden													O		O	

Table 4: Ketchup Brands by Chain (X = Conventional Brand, O= Organic Brand)

[8] It was discovered during the writing of this report that Føtex stores were not visited.

The above table makes evident the dominance that several brands of ketchup have on the market, namely Heinz, Bähncke, Beauvais, and Urtekram. Heinz is especially noteworthy because of its ubiquity in both the conventional and organic market. Still, Urtekram maintains footholds in supermarkets through SuperBrugsen and Irma. We were unable to determine in this study if Urtekram was stocked by other supermarkets prior to Heinz's emergence into the Danish organic ketchup market due to our inability to interview Urtekram or representatives from supermarkets other than COOP, Irma and SuperBrugsen.

Urtekram was also found in all of the natural product retailers that we visited though their importance is somewhat minimal due to their small market share. There are a few possible explanations for this. One is that smaller shops and supermarkets are unable to purchase from large producers such as Heinz in the small quantities that they need. Another is that the stores are unwilling to purchase from Heinz due to ideological reasons or lack of customer demand for Heinz products at these shops.



	0	1	2	3	4	5	6
Organic	11	12	10	1	0	0	0
Conventional	6	0	2	9	9	8	0

Figure 7: Histogram Showing Selection of Organic and Conventional Brands of Ketchup in Copenhagen Retail Outlets

Figure 7 shows the distribution of organic and conventional ketchups in retail outlets surveyed. Almost one third of markets visited (11) do not stock organic ketchup. This number mainly included Fakta and Netto stores, which place little, if any, emphasis on organic foods beyond mainstream products such at milk and vegetables, as demonstrated by Figure 8. Irma and SuperBrugsen have the highest mean number of organic brands of ketchup per store (1.25 and 1.17, respectively), continuing their historical emphasis on organic products. Health food stores as a whole bested supermarket chains by stocking a mean of 1.67 brands per store, with one store carrying three brands of organic ketchup.

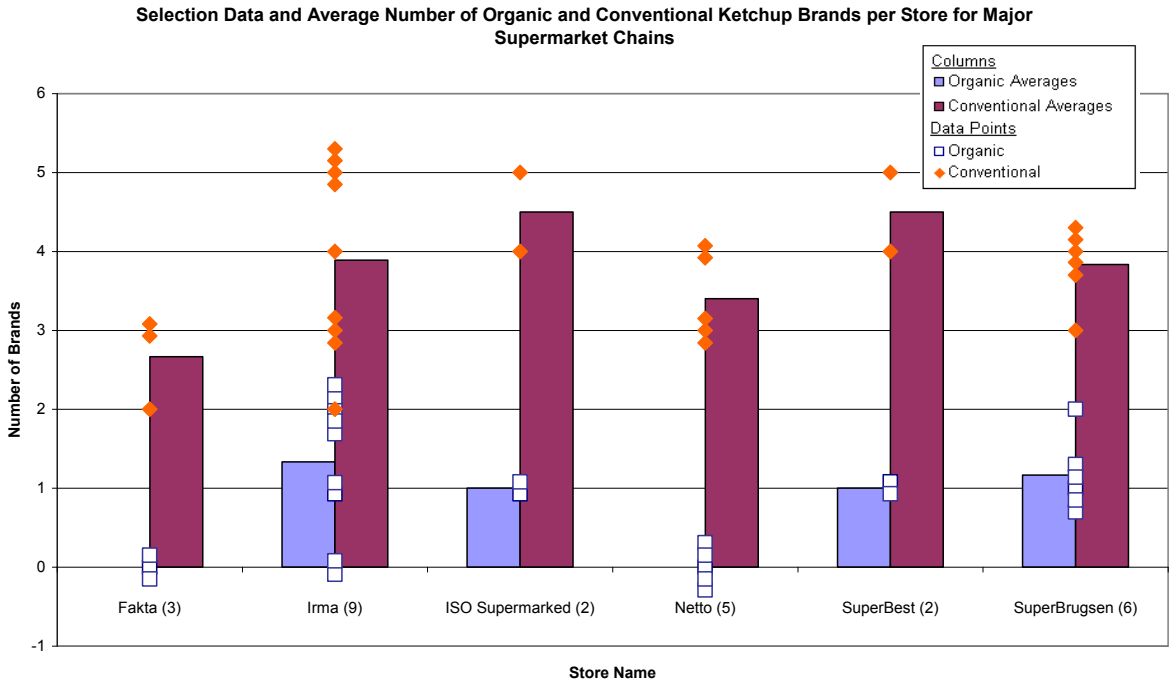


Figure 8: Selection of Organic and Conventional Ketchup by Chain

Figure 8 is a graph that depicts the number of brands of organic and conventional ketchup available in the Copenhagen supermarket chains. The mean numbers of organic and conventional brands are shown with bars. The selection in individual stores is superimposed in between the bars for each chain to show the variance with in each chain. Individual points for organic ketchup are represented with an open square while conventional brands are

represented with closed diamonds. Note that due to technical limitations of the graphing software used, some conventional data are superimposed over organic data.

Figure 8 shows a tight grouping near the mean values of both organic and conventional ketchup for all supermarkets except for Irma. The variation between Irma's stores could be attributable to several factors including store size, store demographics or a management structure that allows store managers to make stocking decisions. The actual cause is not known and this variance could simply be attributable to the fact that Irma's sample size was much larger (over twice the median number of stores visited for supermarket chains).

An interesting point about Figure 8 is that the two supermarkets with the highest average number of brands of conventional ketchup (4.5 for both ISO and SuperBest) only stock, on average, one brand of organic ketchup in their stores. This brand was Heinz, a brand whose conventional ketchups are also stocked in these stores. It should be noted, however, that we were only able to visit two stores from each of these chains.

Figure 9 shows the relationship between the number of conventional brands stocked and the number of organic brands stocked. Again, there are clusters with several stores from each chain. A linear regression analysis was computed using Microsoft Excel. This did not yield a significant correlation ($R^2 = 0.33$) between the number of conventional brands stocked and the number of organic brands stocked.

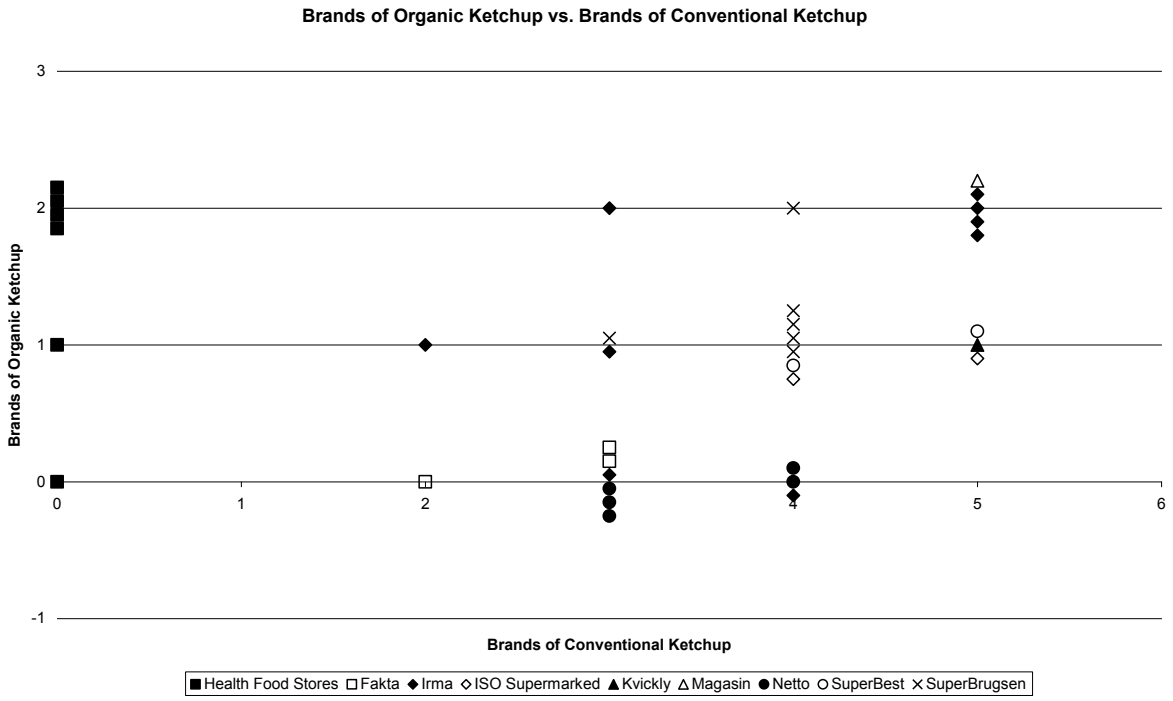


Figure 9: Scatterplot of the Number of Organic Brands vs. the Number of Conventional Brands

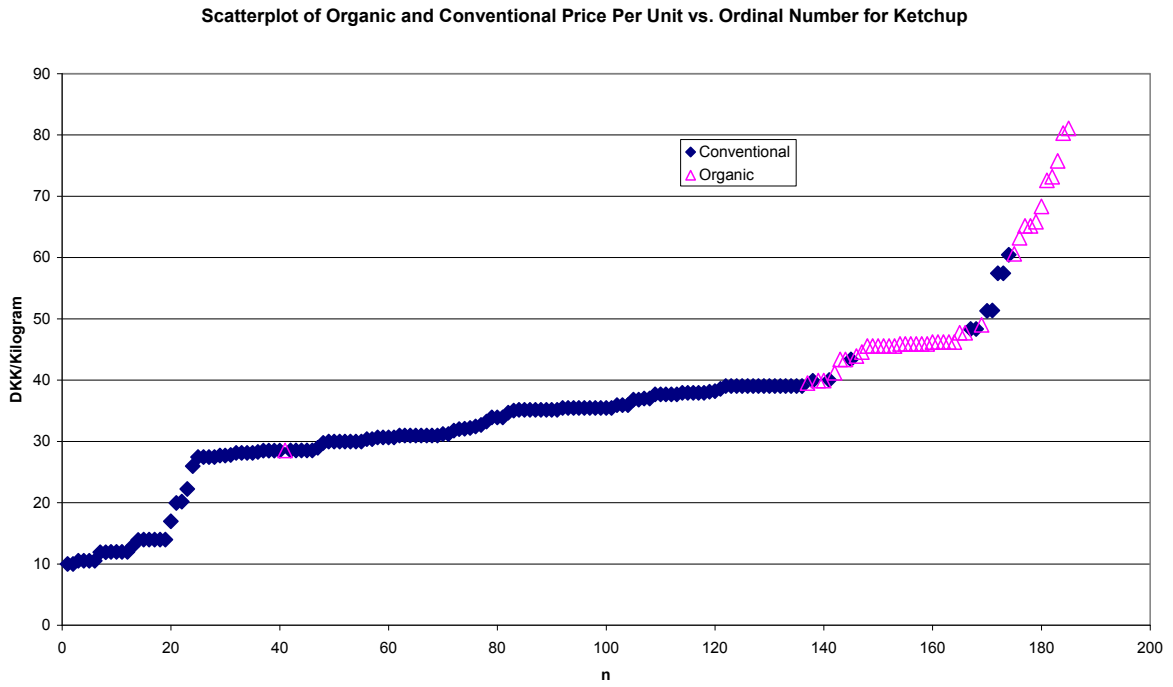


Figure 10: Scatterplot of Organic and Conventional Price per Unit vs. Ordinal Number for Ketchup

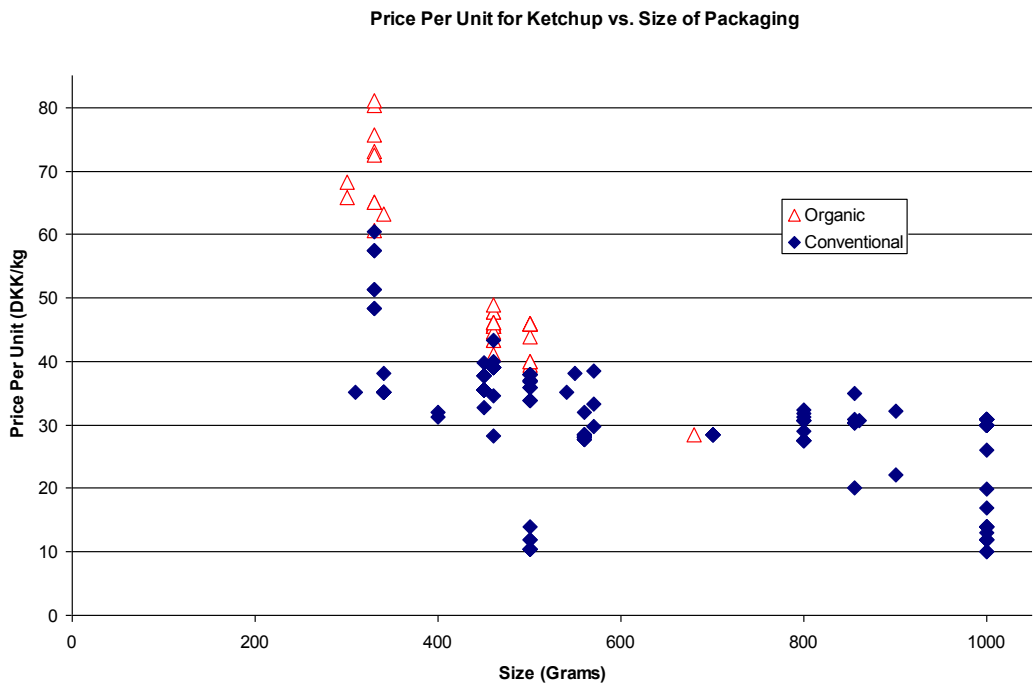


Figure 11: Price per Unit for Ketchup vs. Size of Packaging

Figure 10 shows the range in price per unit for the ketchups that we recorded. Most ketchups are between 30 and 50 DKK\kg although there are ketchups that range between 10 and 80 DKK\kg.

Figure 11 reflects this variation in pricing amongst bottle sizes. Please note that there may be overlapping data points in this and similar graphs for other products. It also shows that a price premium exists for organic ketchups when compared to their conventional competitors of the same size. Little can be said about how this premium varies with size as there was only one organic ketchup over 600 grams.

Because of the large number of data that we have from ketchup, it is possible to investigate if the price premium varies with respect to bottle size. Table 5 groups organic and conventional ketchups between 300 and 700 grams based on their bottle size. While there is a marked decrease in premium between first and second group, the large premium returns in the 400-500 gram range. From these data, there does not appear to be a trend in price

premium vs. size, although one might emerge if ketchup was studied in smaller groups based on store or some objective measure of quality.

Size (grams)	Average Organic Price (DKK/kg)	Average Conventional Price	Price Premium
201-300	70.1	43.9	160%
301-400	45.6	37.1	123%
401-500	43.9	29.3	150%

Table 5: Comparison of Organic Price Premiums by Size Ranges

5.3 Selection Statistics for Peanut Butter

Peanut butter, like rice cakes, was a product category dominated by organic producers. Only 4 out of 35 stores visited stocked a brand of conventional peanut butter, while 23 out of the 25 stores that carried peanut butter stocked organic peanut butter.

Figure 12 shows the distribution of organic and conventional brands of peanut butter. Most markets stocked only one brand of organic peanut butter. The four stores that stocked two brands of peanut butter consisted of three natural food stores and one SuperBrugsen that showed a particular emphasis on organic products. Figure 13 confirms this small selection amongst supermarket chains. There was little variation within chains. This is most likely attributable to the small number of brands stocked by each store.

	Conventional		Organic		
Store Name	La Comtesse	Nutz	Green Choice	Rømer	Urtekram
Supermarkets					
Irma					O
ISO Supermarked		X	O		
Magasin	X				
SuperBest		X			
SuperBrugsen			O		O
Health Food Stores					
City Helsekost					O
Natur og Sundhed				O	O
Øbro Helsekost				O	O
Solhatten					O
Solsikke Helsekost				O	O
Spidsroden					O

Table 6: Peanut Butter Brands by Chain (X = Conventional Brand, O= Organic Brand)

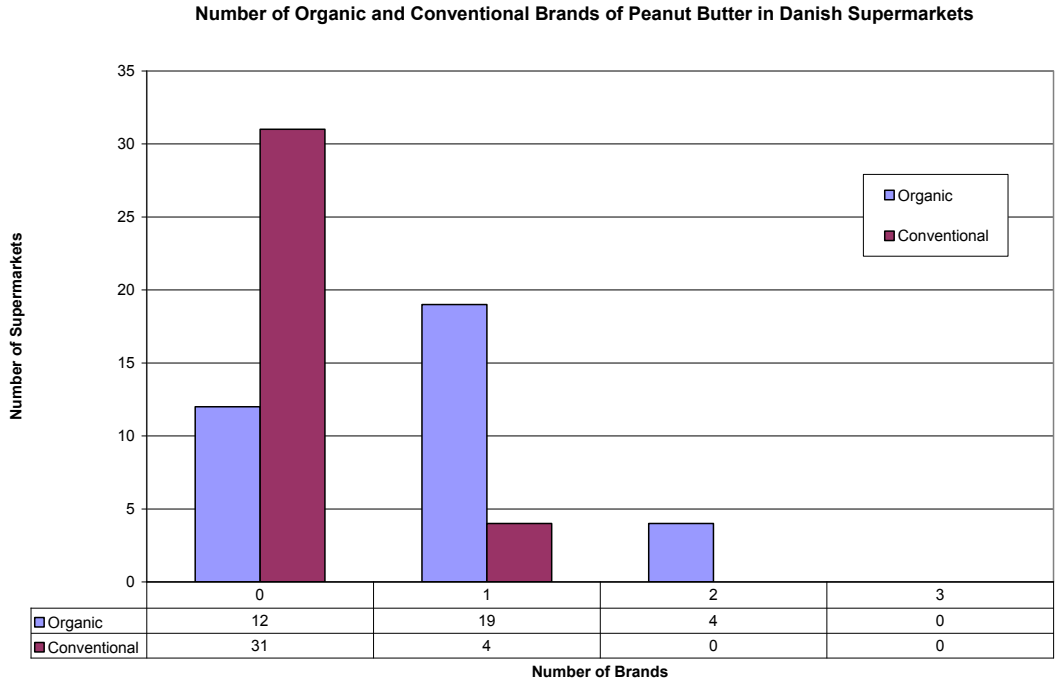


Figure 12: Histogram Showing Selection of Organic and Conventional Brands of Peanut Butter in Copenhagen Retail Outlets

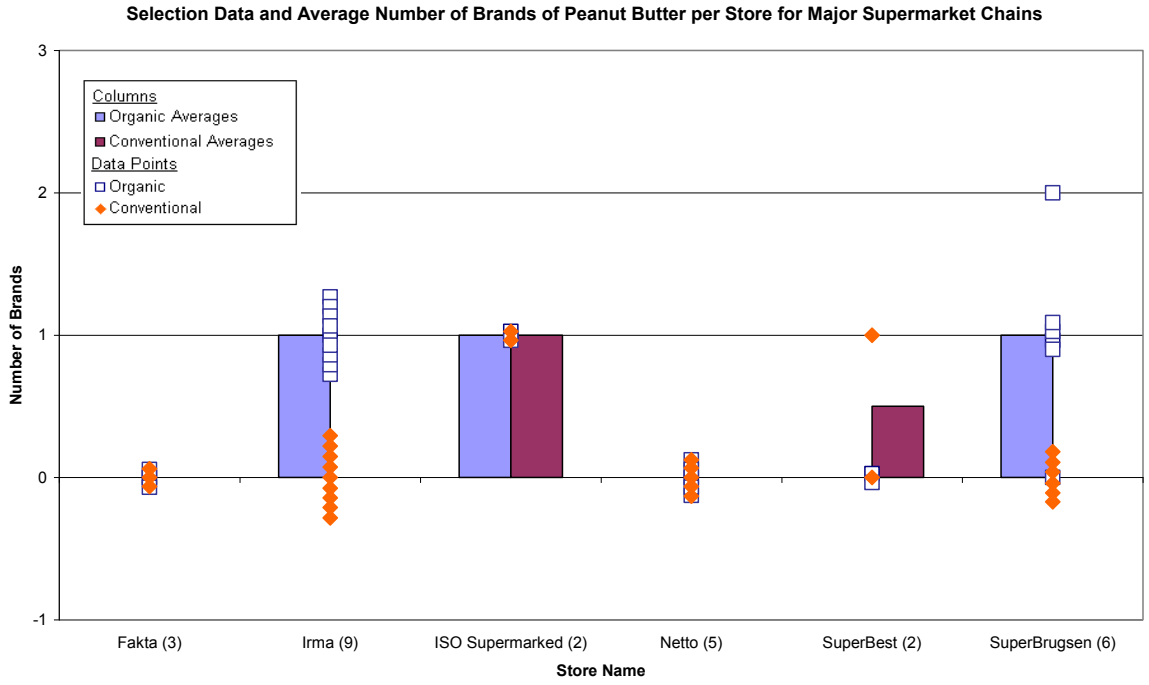


Figure 13: Selection of Organic and Conventional Peanut Butter by Chain

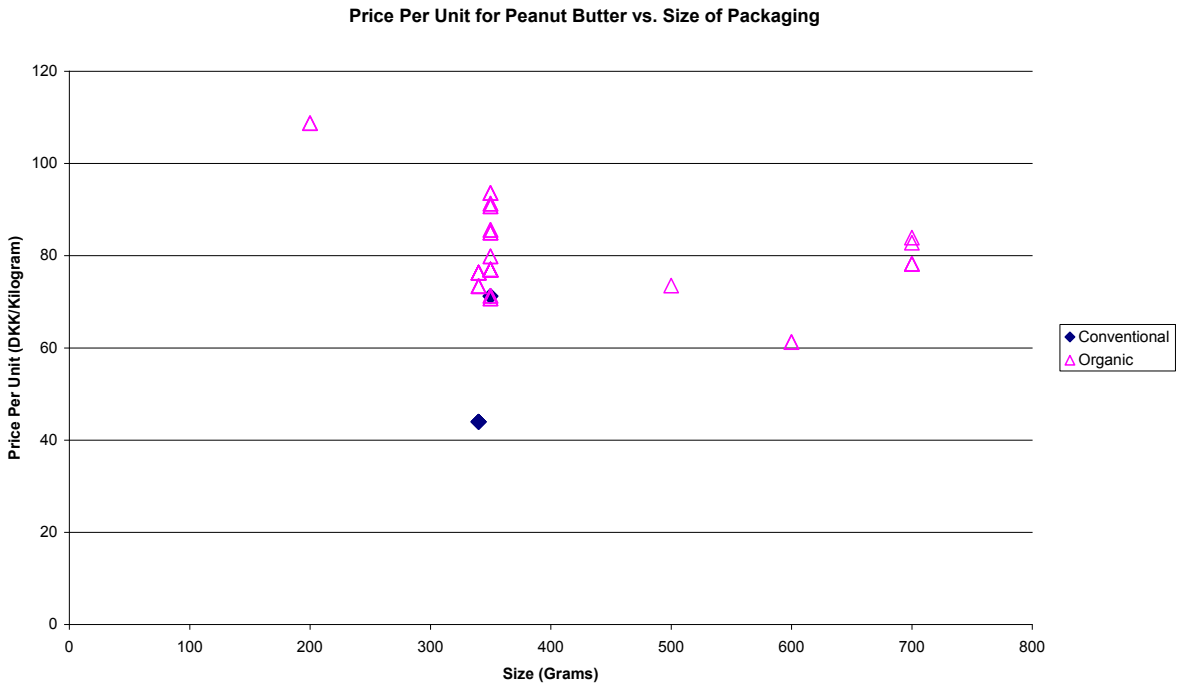


Figure 14: Price per Unit for Peanut Butter vs. Size of Packaging

Figure 14 shows the price per unit vs. the size. There is a cluster of points around 350g and between 60 and 100 DKK/kg. These are the Urtekram products that were found in most stores that we visited.

A 153% price premium was calculated for peanut butter in 300-400 gram packages. Price premiums for other sizes were not calculated because conventional peanut butter was only sold in 340 and 350 gram containers. It should be noted that though there appear to be only two conventional points on Figure 14, there are overlapping data points at those coordinates. Note that there were disparate numbers of organic and conventional peanut butter (53 vs. 7) which may make this premium prone to error.

5.4 Selection Statistics for Rice Cakes

Similar to peanut butter, organic rice cakes dominate the market.[9] Irma, ISO Supermarked, Kvickly, Netto, SuperBest and SuperBrugsen all stock organic rice cakes as

[9] This point is underscored by a comparison of Heinz ketchup and Wasa rice cakes. Both produce organic and conventional products. Heinz conventional is stocked by more chains than its organic product (8-6) while Wasa organic is clearly stocked more than Wasa conventional (5-1).

Table 6 and Figure 15 exhibit. There are two major producers. Urtekram is ubiquitous among Irma stores for Danish certified rice cakes, both under their own label and under Irma's label. Wasa is stocked in many supermarkets that do not stock Urtekram. While an American company, Quaker, has introduced rice cakes, these were only available at SuperBest.

In general, the supermarkets that have historically been leaders in organic foods (Irma, ISO and SuperBrugsen) stock Urtekram, along with the health food stores. Also, several stores stocked up to six varieties of Urtekram rice cakes. This selection exceeded the variety of Wasa rice cakes that we observed.

	Conventional			Both	Organic						
Store Name	Brink	Hildegard	Quaker	Wasa	Ekoland	Green Valley	Lima	Probios	Rømer	Urtekram	Urtekram (for Irma)
Supermarkets											
Fakta	X										
Irma										O	O
ISO Supermarked						O				O	
Kvickly				O							
Magasin	X			O							
Netto				X O							
SuperBest	X		X	O		O					
SuperBrugsen				O						O	
Health Food Stores											
City Helsekost					O		O			O	
Natur og Sundhed									O	O	
Solhatten		X								O	
Solsikke Helsekost							O			O	
Spidsroden								O		O	

Table 6: Rice Cake Brands by Chain (X = Conventional Brand, O = Organic Brand)

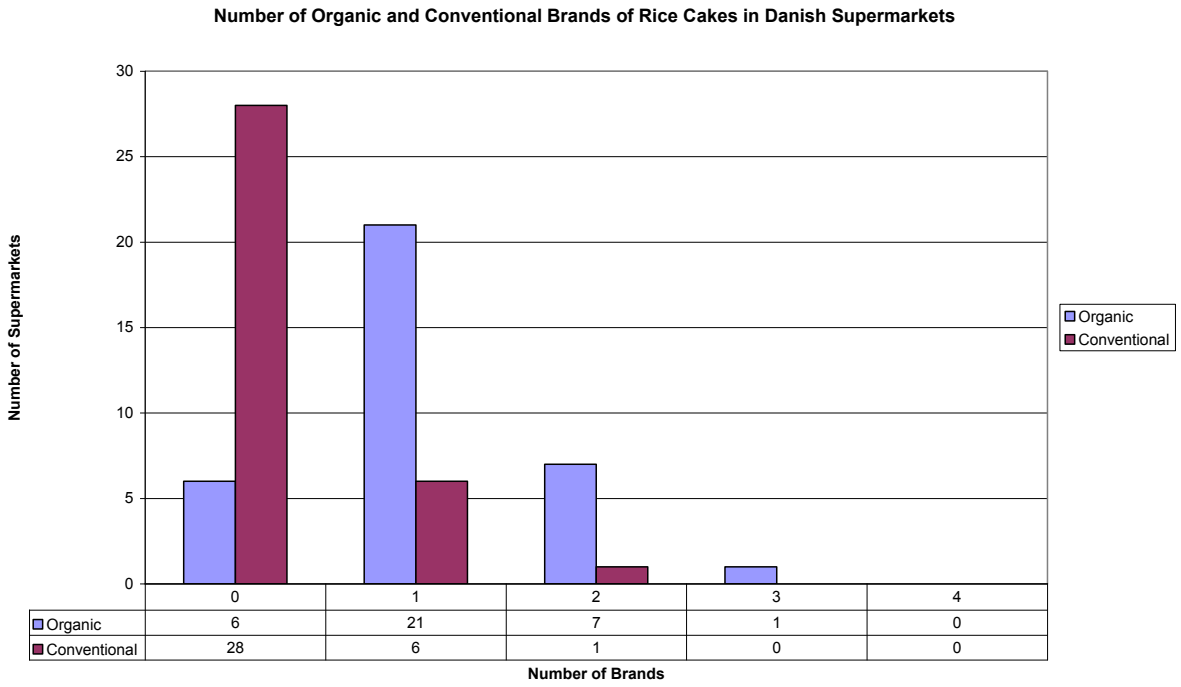


Figure 15: Histogram Showing Selection of Organic and Conventional Brands of Rice Cakes in Copenhagen Retail Outlets

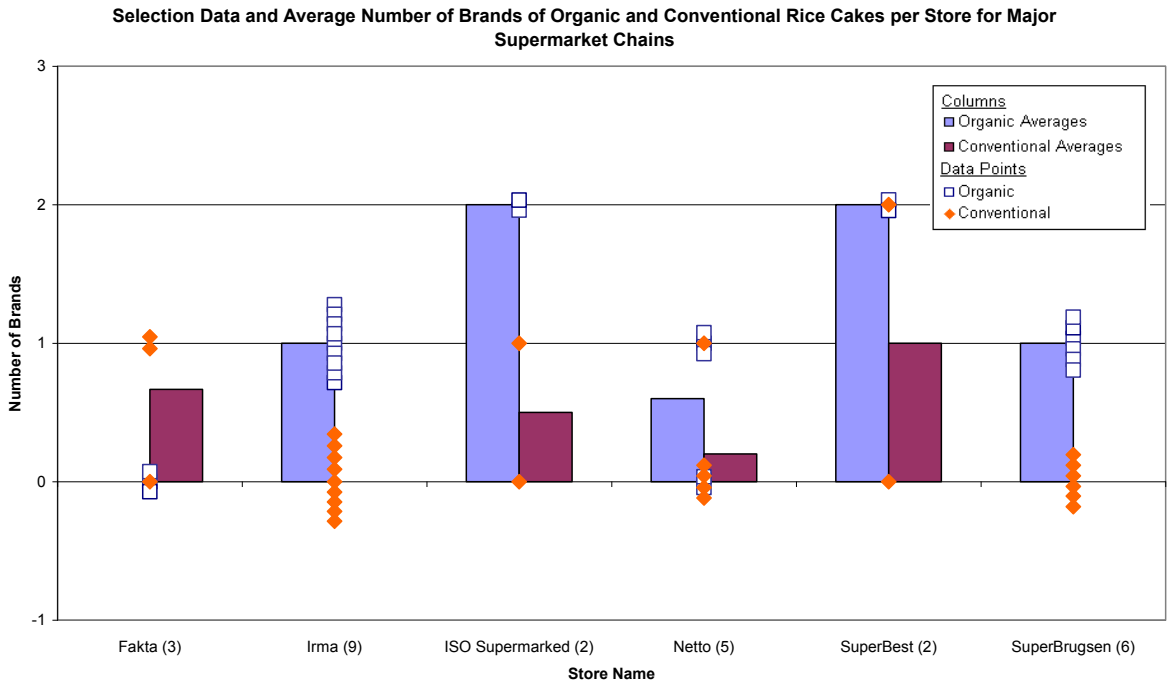


Figure 16: Selection of Organic and Conventional Rice Cakes by Chain

The low variance shown by Figure 16 is not surprising, given the small number of brands that supermarkets choose to stock. Unlike ketchup, where some supermarkets stock five brands, the maximum for rice cakes is two. Although there is a good selection of brands

on the market (four conventional, seven organic), only four of the stores visited stocked more than two brands of rice cakes. Given the discrete nature of stocking a brand, there are only three possibilities (0, 1, and 2). This may be a result of low consumer demand for these products, shelf space, market agreements or other factors. The limited selection available at individual Irma and SuperBrugsen (1) stores may be due to marketing decisions at the corporate level.

One-hundred gram packages were universal among all rice cakes surveyed, rendering analysis of price per unit vs. package size meaningless. A scatterplot (Figure 17) however, depicts trends in prices. The plateaus near 100 and 110 DKK\kg are not formed by single brands, but rather by several brands sold for the same price at several chains. The conventional point at 147.5 DKK\kg was sold at a health food store which may explain its high cost.

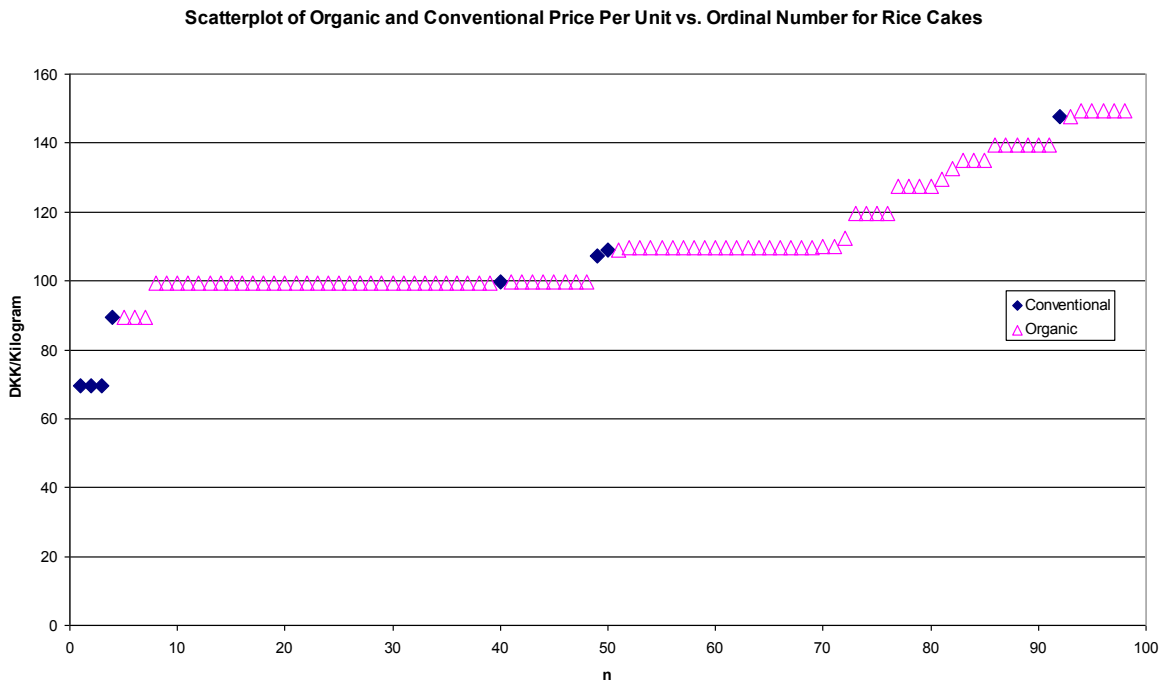


Figure 17: Scatterplot of Organic and Conventional Price per Unit vs. Ordinal Number for Rice Cakes

Rice cakes exhibited an average price premium of 117%, which was one of the lowest for the products surveyed in this study. All rice cakes were included in this calculation because of their uniform size.

5.5 Selection Statistics for Bacon

In contrast to peanut butter and rice cakes, the bacon market is dominated by conventional products. It is also solely the province of supermarkets as Table 7 indicates. Table 7 also shows the large difficulties that Hanegal, the only exclusively organic producer, is experiencing in the market place. Its organic bacon is only sold in Irma stores. It is also interesting to note that bacon produced by Farre A/S was not found at any Fakta or ISO supermarkets visited, despite the fact that Farre A/S is known to market its products in those shops (Franzen, H., interview, April 11, 2003).

	Conventional									Both	Organic
Store Name	Bacon I Skiver	Barfuss	Dansk Frilands	Dybbøl	Kend I Veren	Steff Houlberg (for Irma)	SuperGros	Tulip (for FDB)	Tulip (for Irma)	Tulip	Hanegal
Fakta				X						X	
Irma			X			X		X	X	X	O
ISO Supermarked	X									X O	
Kvickly								X		X O	
Magasin										X	
Netto		X			X						
SuperBest							X			X O	
SuperBrugsen								X		X O	

Table 7: Bacon Brands by Chain (X = Conventional Brand, O = Organic Brand)

Figure 18 shows that while most supermarkets carry at least two brands of conventional bacon, less than half stock a brand of organic bacon.[10] Only, Irma provides the consumer with a choice of two organic bacon brands, including Hanegal.

[10] The number of brands of conventional bacon may be inflated depending on how brands are defined. Danish Crown owns a number of companies including all of Tulip and 60% of Friland (Friland, 2002). Both Tulip and

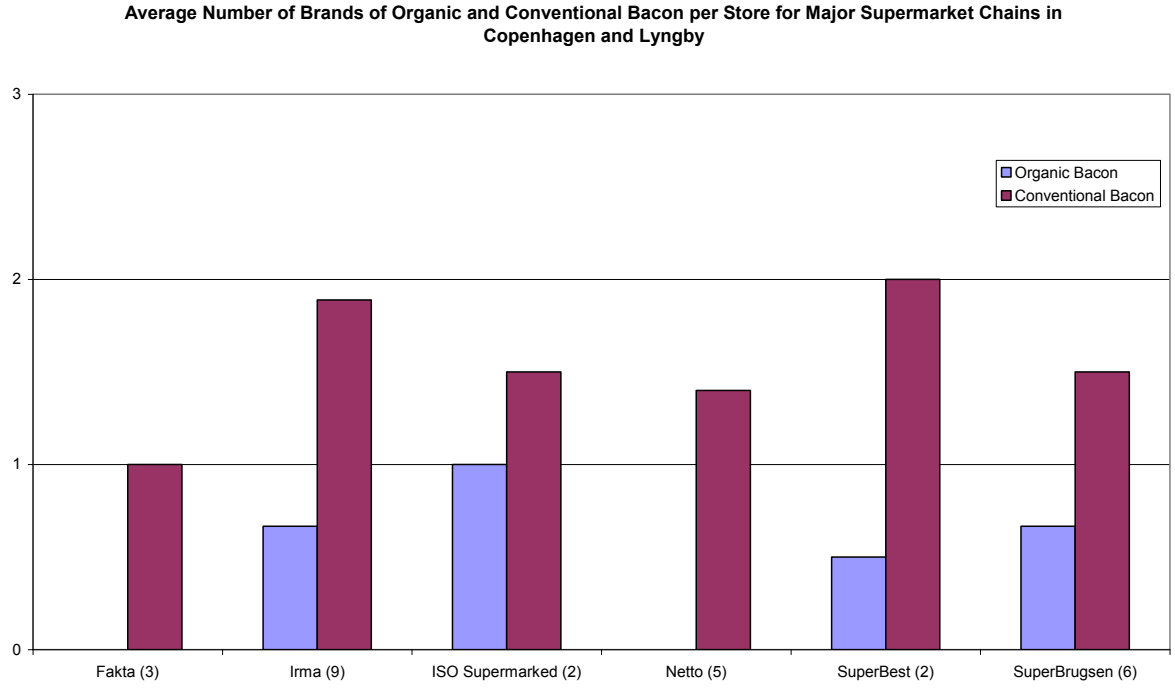


Figure 18: Histogram Showing Selection of Organic and Conventional Brands of Bacon in Copenhagen Retail Outlets

Figure 19 shows that there is minimal variance in selection of organic and conventional bacon between stores in chains. This is likely attributable to low consumer demand, shelf space issues or decisions made at the corporate level.

Friland produce bacon under their own brand name. In addition, Tulip produces Bacon sold under the Irma label. Each of these brands was counted as unique to maintain consistency among products.

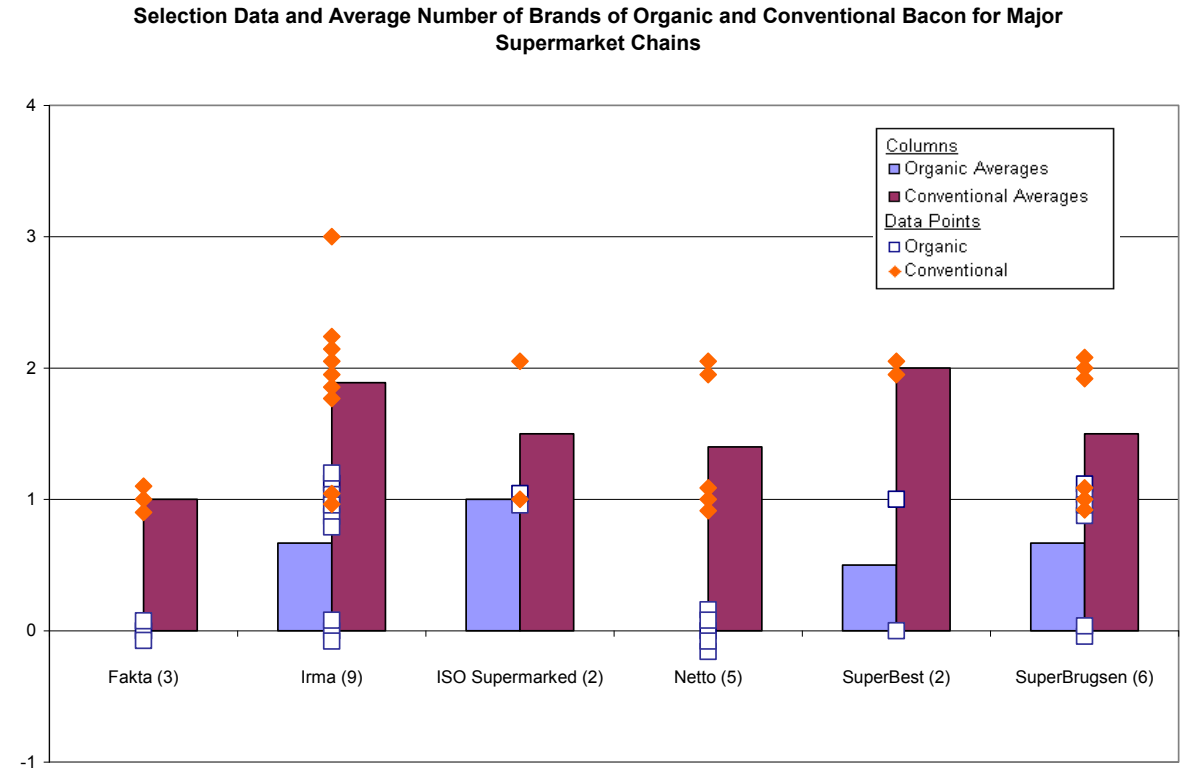


Figure 19: Selection of Organic and Conventional Bacon by Chain

Figure 20 shows that organic bacon has higher price per unit (PPU) than its conventional competitors. The mean PPU for organic bacon is 178 DKK/kg compared to 88 DKK\kg for conventional.[11] The price premium is very noticeable as a 100g package of organic bacon (the only size that was found in this survey) is typically more expensive than a 150g package of conventional bacon. This increased price premium is also likely related to the fact that organic bacon was only found in 100g packages.

The prices for Hanegal and Tulip organic products are similar. However, Tulip, as a larger company can likely better absorb any costs incurred from low sales of organic bacon as it will be a smaller percentage of their profits than it would be for Hanegal.

[11] These averages include all sizes because there was not an overlap between conventional and organic bacon sizes.

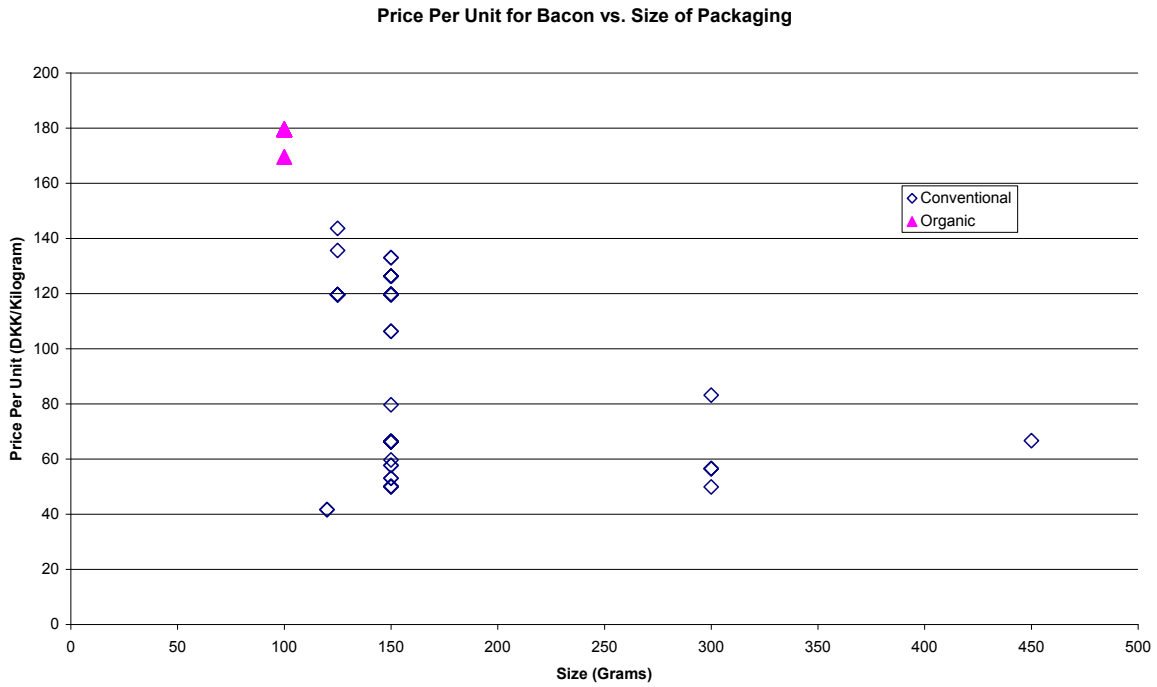


Figure 20: Price per Unit for Bacon vs. Size of Packaging

5.6 Selection Statistics for Milk

Of all products studied in this report, none exhibit the dominance of one producer like the milk market does. While Arla has a number of competitors in the organic sector, it enjoys a veritable monopoly in conventional milk.[12] Of the twenty-nine stores that carried conventional milk, only one carried a brand other than Arla. Of the twenty-seven stores stocking organic milk, Arla Harmonie is sold in seventeen of them.

Very few stores stock more than one brand of organic milk and none stock more than one brand of conventional milk. Interestingly, when stores do stock multiple brands of organic milk, they do not always pit Arla against another brand. It is possible that this is a sign that Arla employs some type of "exclusive dealing" agreement with grocery stores, but we have not seen any additional evidence to support this (Kotler, 1997).

Figure 21 shows very tight groupings for selection within chains. This is likely attributable to fact that milk is delivered directly to individual stores by the dairies. This

[12] Arla disputes such allegations, citing the fact that they only control a 7% of the EU milk production (Hougaard, E. & Jeppesen, K., interview, April 8, 2003).

arrangement is necessary because milk is a perishable product and because of the demand for fresh milk by consumers (Hougaard, E. & Jeppesen, K., interview, April 9, 2003; Krohn, M. interview, April 2, 2003). Therefore, stocking multiple brands would be less economical as milk would be ordered and delivered in smaller quantities. This would further diminish the economic efficiency that companies pursue by doing business with a single intermediary (Kotler, 1997).

	Conventional	Both	Organic					
Store Name	Grambo Gård	Arla (Ekspress & Harmonie)	ISO	Naturmælk	Økomælk	Øllingegaard	Thise	Thise (for Irma)
Supermarkets								
Fakta		X O						
Irma		X						O
ISO Supermarked		X	O			O		
Kvickly		X O			O			
Magasin	X	O						
Netto		X O						
SuperBest		X O			O			
SuperBrugsen		X O		O				
Health Food Stores								
Øbro Helsekost							O	
Solhatten						O		
Solsikke Helsekost						O	O	

Table 8: Milk Brands by Chain (X = Conventional Brand, O = Organic Brand)

Figure 22 shows that there is a price premium for most organic milk. The price premium was calculated to be 116%, which is on the low end of premiums that have been calculated for this study.

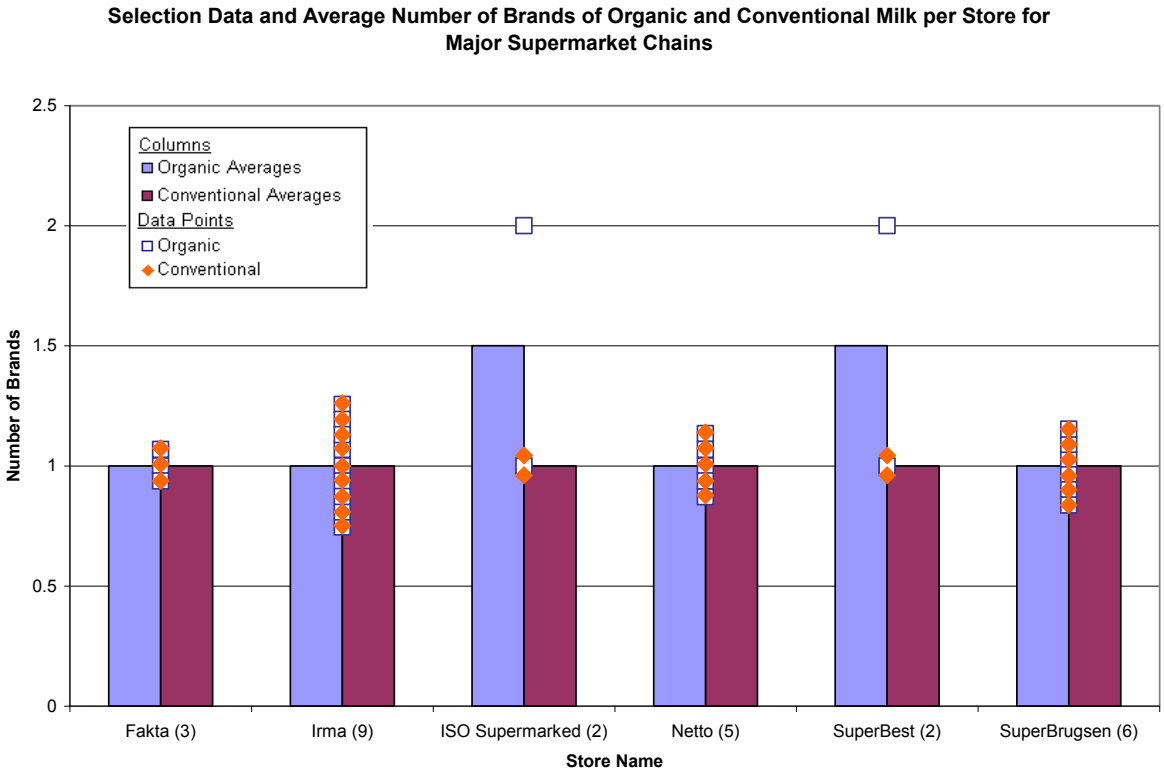


Figure 21: Selection of Organic and Conventional Milk by Chain

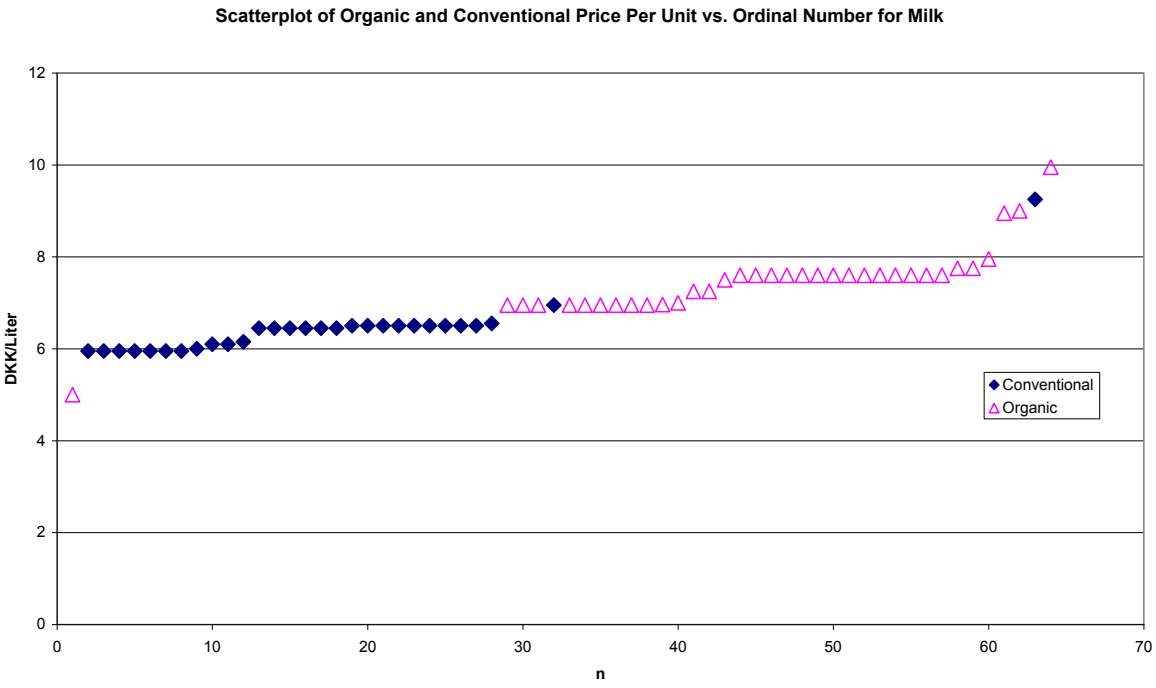


Figure 22: Scatterplot of Organic and Conventional Price per Unit vs. Ordinal Number for Milk

5.7 Summary

The most interesting aspect of these results is the variance in selection between products. The structure of each industry varies, depending on the target audience, the size of the market and historical forces that have shaped it. This survey has shown that there has been a definite influx of large companies into the Danish organic food market. It has also shown that many small pioneers have managed to survive and even thrive in this market.

In general, our results show that small, idealistic producers have been able to maintain their viability by pursuing niche markets. In large sectors such as milk and ketchup, companies like Thise, Øllingegaard and Urtekram have pursued niches within the larger market by differentiating themselves from their dominant competitors. It is currently difficult to develop such a differentiation strategy in the organic bacon market, because of the small size of the market. However, producers such as Hanegal and Farre A/S have pursued such strategies. Their strategies will be discussed in later sections of this report. Peanut butter and rice cakes constitute niche markets in themselves, explaining why pioneering companies such as Urtekram have seen little outside competition.

Results also confirm trends in the selection of organic products between supermarket chains. Table 9 shows a hierarchy among Copenhagen supermarkets and their emphasis on organic food. This list only includes the major chains that we visited on multiple occasions to ensure that we accurately depict the patterns among stores.

"Organic Leaders"	ISO Supermarked SuperBrugsen "Green Shops"
"Mainstream Organic"	Irma SuperBrugsen
"Mainstream Conventional"	SuperBest
"Discount Chains"	Netto Fakta

Table 9: Hierarchy of Supermarket Chain Emphasis on Organic Foods

At the highest level are the "organic leaders" which includes ISO Supermarked and SuperBrugsen "Green Shops" – SuperBrugsens with a particular emphasis on organic foods.

It should be noted that these shops are not necessarily leaders for ideological reasons; rather, organic foods seems to fit well into the demands of their customer base.

The "Mainstream Organic" supermarkets include Irma and the rest of the SuperBrugsen chain. These supermarkets, the pioneers of organic food among supermarkets, have integrated organic foods into their business strategy and carry a consistent selection of organic products in their stores, even though these stores are found in a variety of demographic areas. Both chains have a large number of stores, making them very accessible to consumers.

The "Mainstream Conventional" category includes SuperBest. While SuperBest does carry some organic products, little emphasis is placed on these products, either in selection or in the stores. While SuperBest did carry organic milk, ketchup and bacon, these products were from the same brands as the conventional products that they stocked.

The "Discount Stores" include Netto and Fakta. These stores place a primary emphasis on low price, which as a result excludes many organic products that have high price premiums such as ketchup. However, these stores carry organic products with lower price premiums, such as milk and rice cakes.

Organic food pioneers will likely find the greatest success by forming relationships with supermarket chains that share their same philosophies regarding organic foods. Companies that have pursued this strategy such as Thise, Øllingegaard and Urtekram credit this with their success (Poulsen, M., interview, April 7, 2003; Krohn, M., interview, April 2, 2003; Damsgaard, L., interview, April 9, 2003).

6.0 Producer Strategies

This section summarizes the strategies of key producers in the organic milk and bacon industries. The information was gathered largely through interviews, the plans for which can be found in Appendix D. During the interviews, we attempted to discover the motivations and strategies of the key producers. Our main research question was to determine what happens when there is consolidation in the market.

6.1 Milk

There are many actors in the complex Danish organic food market, ranging from very large Arla Foods to much smaller Naturmælk. The well-developed, mature market makes it possible for this range of dairies to exist in Denmark. The established market also allows for dynamic relationships, such as with competition, marketing and innovation strategies, to occur. This section summarizes the strategies of the key producers in the Danish organic milk market, namely the Danish Dairy Board, Arla Foods, Naturmælk, Økomælk, Øllingegaard, and Thise. This information was gathered mostly through interviews with the specific companies, but was supplemented with company annual reports and websites.

6.1.1 Danish Dairy Board-Mejeriforeningen

The mission of the Danish Dairy Board (DDB) is to promote the common commercial interests of the dairy industry in Denmark both within Denmark and abroad. DDB also works to safeguard the interests of Danish milk producers in relation to national, international and European Union policies.

Currently, twenty-six out of the thirty-nine dairies in Denmark are members of the DDB. There are two members that produce solely organic products, Thise and Naturmælk. In addition to the two completely organic dairies, there are six conventional and organic dairies including: Arla, Them, Bornholms, Endrup, Borup and Nørup. There are three

organic dairies that are not members of DDB, Øllingegaard, Osteriet Hinge and Kristiansminde. To become a member of DDB, dairies must apply and annually pay a base fee of 10.000 DKK and then an additional 1.500 DKK per one million kilograms of milk delivered or processed. The membership fees generate a 10.7 million DKK annual income for the DDB.

The main service DDB gives to its members is to give them information. The DDB reads and analyzes any new laws or regulations and provides the dairies with information on how to follow them and control their milk quality. In addition to regulatory information, DDB also provides its members with information about the current political situation and any changes in policy.

In addition to promotion and information services, the DDB provides a place for the dairies to voice their concerns. DDB will then relay the opinions and common interests of its members to the Danish government. Individual dairies can promote their private interests on their own if they so desire (Eriksen, B., interview, April 4, 2003).

6.1.2 Arla Foods

Arla Foods was founded after a merger between Danish MD Foods and Swedish Arla in the spring of 2000. Arla's mission statement is "to offer modern consumers milk-based food products that create inspiration, confidence and well-being." The company is a cooperative owned by approximately 13,650 milk producers in Denmark and Sweden. Arla is structured so that each farmer has one vote in the company. The farmers are organized geographically into locales which are organized into regions. The two highest organizational levels are the board of representatives and the supervisory board.

Arla's predecessor, Danish MD Foods, has been producing organic milk since 1989. One of the driving forces behind Arla entering the market was that Arla wanted to diversify its assets in the market and keep some of its competitors out of it. Their first organic

products were whole milk and butter on an experimental basis. In the mid 1990's the organic milk market grew significantly and Arla introduced two new products: Harmonie and semi-skim milk. Currently, Arla sells 27% of the organic milk in Denmark, and sells 90% of all milk, both conventional and organic, in Denmark.

Many of Arla's farmers are interested in organic production because of the financial bonus that Arla gives to them. However, because of the current organic milk surplus, Arla is no longer encouraging farmers to convert to organic production. Also to discourage conversion to organic production, Arla is adjusting the monetary bonus paid for organic milk. This adjustment is partly because some of Arla's conventional farmers are unhappy that the extra cost of the unsold organic milk is essentially being paid by them. Arla is currently attempting to ameliorate the organic milk surplus by increasing demand for organic products.

The main market for Arla's products is supermarkets, specifically COOP Denmark stores. Sales of the organic products are higher in cities such as Copenhagen and Århus. Arla attributes the success of organic products to their widespread availability in supermarkets. Sales in supermarkets account for roughly 25% of Arla's economic turnover, yet the company will also "cater to different markets because they want them all" (Hougaard, E. & Jeppesen, K., interview, April 8, 2003).

In order to boost Arla's market share, a new marketing campaign has been launched. The goal of the campaign is to encourage consumers to buy organic products by literally putting a face on their products. Arla will print stories, both negative and positive, about its organic farmers on the milk cartons. The first carton tells a story about Hardy, an organic farmer, and has already generated an enormous amount of press and consumer interest. There are future plans to put critics of Arla on the cartons, such as a farmer from Økomælk who dislikes Arla because of the recent acquisition of that dairy.

Arla's most recent innovative idea was the introduction of organic minimælk before launching a conventional type of the same product in 2001. Minimælk is made from 0.5% fat milk but tastes like 1.5% fat semi-skimmed milk. The introduction of minimælk caused Arla's market share of organic milk to increase from 23% to 30% before stabilizing at 27%.

The animal welfare practices Arla upholds are in the process of being changed. Arla adheres to a three-tier system of following regulations with the European Union at the top, Danish in the middle and company regulations at the bottom. Arla feeds its cows 100% organic fodder, a practice that is now but was not always, commonplace in the Danish organic milk sector.

Arla does not see itself as having any social or ethical responsibilities with its organic products. It believes that "organic is not a religion, it is just a different type of product" (Hougaard, E. & Jeppesen, K., interview, April 8, 2003). However, Arla does feel obligated to give its farmers a fair price, largely because some of them have very low incomes. In spite of this obligation Arla is consumer driven and is not concerned about the effects of selling their products on the German market, such as German producers losing jobs because of Arla's penetration in the market.

Consolidation was likened to professionalism by Arla. Arla stated that smaller, more idealistic companies tend to not operate their business professionally and end up going bankrupt, possibly because they did not diversify their products or markets. However, this is not the case with Arla, whose total market share of conventional and organic products has grown from about 40% in the mid 1980s to its current level of 90%. This success can be attributed to consolidation in the organic market or in the dairy sector in general.

Because of the level of professionalism Arla upholds, they have good relationships with the dairies with which they compete. For example, when working on specific marketing initiatives, Arla will work in conjunction with Thise or other dairies. Also, Arla knows that

with regards to other dairies, "if there is someone we want to crush, we can crush them." Yet, Arla also knows that they walk a fine line between consolidation for economic benefits and public relations issues associated with those consolidations. Arla is conscious of the fact that "small is beautiful" in Denmark and must try to keep its public image favorable. Currently Arla hold a 7% market share of dairy products within the European Union, which is not enough to determine that Arla has a monopoly over the market (Hougaard, E. & Jeppesen, K, interview, April 8, 2003).

6.1.2.1 Økomælk

Økomælk has been a company since 1995, though some of its farmers have been producing organic milk since 1991. The company has been certified organic ever since it has been in existence. Økomælk sells about 25,000,000 liters of organic milk per year or about ten to fifteen tons of organic drinking milk per day. All of Økomælk's products are 100% organic and bear the Ø-mark except their colored cheddar cheese which is sold in the Middle East.

Økomælk products are marketed primarily in supermarkets and secondarily in smaller organic retailers. Supermarkets were chosen as their main market because of the volume of products that can be sold in them. Økomælk's supply system enables the company to receive orders during the day and ship the order overnight so that it arrives in the store in the morning. There is enough demand so that Økomælk can sell all their organically produced milk as organic (Poulsen, K., interview, April 2, 2003).

Until January 1, 2003 Økomælk's largest competitor was Arla, at which time Arla purchased Økomælk. One of Arla's motivations in purchasing Økomælk was because Arla saw Økomælk's business operations as unprofessional and the company may have gone bankrupt without Arla's intervention (Hougaard, E. & Jeppesen, K., interview, April 8, 2003). Despite the consolidation of Økomælk into Arla, changes have not been made to the

structure of the company. The dairy's competitors are now Thise and Naturmælk (Poulsen, K., interview, April 2, 2003). After the acquisition of Økomælk, Arla decided to continue to market Økomælk's milk under its own brand because it had such a good reputation. This marketing strategy also works to increase Arla's market share while minimizing public knowledge about the merger (Hougaard, E. & Jeppesen, K., interview, April 8, 2003). It is difficult to predict whether this strategy will persist in the future, as the merger is so recent.

6.1.3 Naturmælk

Naturmælk has been a certified organic dairy since 1994. The dairy is a cooperative of twenty-one organic farms. Their intake of organic milk is 13 million liters annually. Of that volume, Naturmælk uses five million liters for their own production and sells the rest to other dairies for their production purposes. Currently, their product line is mainly liquid milk, but also includes some yogurts and cheeses.

Naturmælk abides by the Danish organic regulations for its animal welfare practices. In addition to the regulations, the cows are fed 100% organic feed and the calves are kept with their mothers for the first few days of their lives.

Markets in Denmark are the key retail outlet for Naturmælk's products, however, since the dairy is located close to Germany, their products are also sold there. Within the Danish markets, their products are sold mainly at COOP Denmark stores, DSB rail station shops and at gas stations. These markets were chosen largely because they were the only outlets that would accept Naturmælk's products. Since Arla controls 90% of the organic milk market, Naturmælk was forced to market their products wherever they could. Current demand for the products is sufficient, but the company would like it to increase.

Naturmælk has developed some new products, including a semi-skimmed yogurt and some fermented products. The dairy develops products at the demand of its customers.

Some of Naturmælk's customers expressed interest in being able to buy all their dairy products from Naturmælk, therefore the dairy had to expand their product line.

Competitively, Naturmælk has good relationships with other dairies. This is largely because of their cooperative nature and because they supply milk to other dairies (Jørgensen, L., interview, April 24, 2003).

6.1.4 Øllingegaard Dairy

Øllingegaard Dairy has been in existence since 1995. The beginnings of the dairy were a direct result of the negative press about the effects of pesticides in the environment in March and June of 1995. Because of the articles about polluted Danish ground water and Western men having fertility problems organic milk sales increased greatly. The increased demand for organic milk products led to major milk shortages. At that time, Morten Krohn of Øllingegaard Dairy approached the director of ISO Supermarked and offered to build a dairy if ISO would give him a contract for the milk. Such an agreement was made and Øllingegaard Dairy was created. In 1999, after business had significantly grown, the cows were sold and Øllingegaard Dairy began to focus more on the dairy operation and less on raw milk production. The dairy was later sold to a non-profit organization because it grew too large for Krohn to handle.

Øllingegaard Dairy markets its products mainly to the ISO Supermarked chain, an upscale market in the Copenhagen area. Øllingegaard Dairy strives to supply the freshest milk possible. They succeed at this goal through collecting milk from the farmers in the afternoon, begin processing it at 20.30 and delivering the milk early in the morning. In addition to supplying fresh milk, Øllingegaard also strives to produce high quality products.

Øllingegaard Dairy tends to not introduce new products because, according to Morten Krohn, innovation can often lead to decreased quality. Since a major selling point for Øllingegaard Dairy's products is that they are high quality, new, innovative products are less

important to the ideals of the dairy. However, Øllingegaard Dairy has recently created a new lemon and sugar buttermilk product, so that they could remain competitive in the market (Krohn, M., interview, April 2, 2003).

6.1.5 Thise Mejeri

Thise Mejeri has been a certified organic dairy since it was founded in 1988 inside a conventional dairy dating back to 1857. The dairy has been expanding since it began, and is now a cooperative of forty-five organic farmers. The conventional dairy operations have ceased and Thise Mejeri is solely organic. Annually Thise manufactures 20,000,000 liters of organic milk in conjunction with two additional production facilities, Gedsted and Grinsted, in Jutland.

Since Thise Mejeri is owned by the farmers providing the milk it strives to pay its farmers competitive prices. Until two years ago, Thise Mejeri was paying its farmers more than Arla was paying, yet since then Thise Mejeri has been paying slightly less. The change in prices paid is because Thise Mejeri pays its farmers based upon market conditions, whereas Arla has long term contracts with its farmers.

Thise Mejeri adheres to the European Union regulations for organic cow welfare, and has some special rules in addition to the regulations. Following the European Union rules, Thise Mejeri's cows must graze on grass for 150 days per year, when the cows are inside they cannot be tied in a fixed position, clean straw and natural light must be provided, and mother cows and their calves must be kept together after birth. Thise Mejeri prohibits its cows from being sold for export into meat markets.

Thise Mejeri markets 80% of its products in Denmark. The remaining 20% are sold in Germany, the United Kingdom and Sweden. Within Denmark, most of Thise Mejeri's products are sold to the COOP Denmark chain, which generates half of Thise Mejeri's profits. Among all the COOP Denmark chains, Thise Mejeri has the best relationship with

the Irma chain. Thise Mejeri and Irma have a special cooperation in which Thise Mejeri packages milk with an Irma label and sells it to Irma at a low price. In addition to marketing in supermarkets, Thise Mejeri also sells to local markets. They have a small shop at the dairy in Roslev and also sell to stores in the Skive area, mainly Kvickly. The bulk of Thise Mejeri's products are sold in Copenhagen.

The market is more breakeven than profitable. Despite attempts to expand its market share through the development of niche products and its cooperation with Irma, competition has been tougher in recent years. In order for Thise Mejeri to keep up with competition in the market, the company is always exploring markets abroad. Currently, Thise Mejeri is looking into markets in Spain, Greece and the United States, specifically California and Manhattan.

Thise Mejeri has large product line of seventy products including: seven different types of cheeses, liquid milk including Jersey milk and minimælk, six different flavors of butter, buttermilk, yogurt, sour cream, Danish Ymer and Danbo cheese. One of Thise Mejeri's innovative products, Jersey milk, came out of the idea that, "milk just ain't milk" and milk from different cow breeds should be separated. This concept even won a prize over dairies in all Nordic countries for most innovative product or idea. A second successful innovative product Thise Mejeri developed was Jersey minimælk. Thise Mejeri's minimælk was introduced concurrently with Arla's minimælk in 2001. The introduction of minimælk caused Thise Mejeri's market share to grow, despite Arla's competitive product being released at the same time.

There is a large demand for Thise Mejeri's products in the market to which they supply. This demand had been growing for the past fifteen years and is now beginning to slow. Currently, the demand is only growing at about 2% more than it did last year.

Thise Mejeri is responsible for some consolidation in the Danish organic milk market. However, Thise Mejeri tends to cooperate with other dairies, not take them over. Currently

Thise Mejeri is cooperating with two Jutland cheese producing companies, Grindsted and Gedsted. The cheeses produced by the cooperating dairies are marketed under the Thise label, yet the label states which dairy the cheeses come from. Thise Mejeri's policy of cooperation differs from consolidation in that the company carefully chooses who to cooperate with. Thise Mejeri and its cooperating dairies have complementary product lines. The cooperating dairies also keep their independent business structure and are not managed by Thise Mejeri (Poulsen, M., interview, April 7, 2003).

6.2 Bacon and Processed Meats

The organic bacon and processed meat market in Denmark is small and not largely profitable. As a result of the size and low profitability of the market, there are few producers in it, namely Danish Crown and its subsidiaries, Tulip and Friland Foods, Farre A/S, and Hanegal. This section summarizes the business strategies of these companies. The information was gathered through interviews, company annual reports and company websites. Our main focus when amassing information was the bacon industry, yet since it is so small, this section also contains information about the organic processed meat industry.

6.2.1 Danish Crown

Danish Crown was founded as conventional co-operative slaughterhouse in 1887. In the forty to fifty years following its establishment many more pig slaughterhouses were founded around Denmark. Then in the 1960s, the slaughterhouses began to merge so that they could have more market strength. These mergers are the key to Danish Crown's success. The most recent mergers occurred in 1998 with the merging of Danish Crown and Vestjyske Slaghterier and later Danish Crown and Steff-Houlberg. Specifically, the merger with Steff-Houlberg enabled Danish Crown to restructure the industry to realize their vision of Slaughterhouse Group Denmark.

The core business of Danish Crown is slaughtering and fresh meat, with processed meats also contributing to their earnings. Their turnover in 2001/2002 was 43 million DKK, which was an 8% increase from the previous year. Their high turnover enables Danish Crown to pay its pig producers more than companies in other major pig producing countries, specifically Germany, Holland and France.

Danish Crown is the parent company to many other subsidiary production companies, including Tulip, which produces both organic and conventional products. Danish Crown itself does not produce organic meats (Danish Crown Group 2001/2002 Annual Report and Accounts).

6.2.1.1 Friland A/S

Friland A/S has been an organic meat vendor since January 1, 1992 when the company was established. Its farmers cooperatively owned the company until a recent merger with Danish Crown[13]. The company is now jointly owned by Danish Crown and the farmers, with 60% and 40% shares, respectively.

Friland has close contacts with its 1400 farmers, through a "farmers department." The department enables Friland to be aware of the number of animals each farm has. In addition to surveillance of the farms, the farmers department also instructs the farmers about production facilities. The farmers are paid enough so that they are able to provide Friland with quality organic animals.

As one of Europe's largest suppliers of organic meat, Friland supplies 80% of the organic meat in the Danish market. Friland works closely with supermarkets and other retail food outlets to ensure that consumer interests and demand are reflected in their products. Their pork is sold as fresh meat so that it can be cut to meet customer demands. In addition

[13] We were unable to determine when Friland A/S was purchased by Danish Crown. Both the Danish Crown and Frialnd A/S websites did not provide this information and we did not have an in-depth interview with either company.

to fresh meats, some processed products are made, namely ham, bacon and sausage. Supermarkets were chosen as the main marketing outlet because they are where consumers buy most of their meats. Demand for organic meats is fairly high and slowly increasing, but not as high as conventional products. Demand is lower largely because the price of organic products is so much greater than conventional products.

One main reason Friland was established was to produce meat from animals raised under high animal welfare standards. The company has worked with the Danish Animal Welfare Society to establish regulations for their pigs in addition to the European Union regulations. The key additional regulations include: pigs must be untethered all year, sows and piglets must be kept together until the piglets are seven weeks old, tails cannot be docked, teeth cannot be cut, at least 80% of the pigs' food must be organic and not contain genetically modified organisms, meatmeal or bonemeal, animal fat, antibiotics, growth promoters, coloring agents or preservatives, and all slaughter pigs must have outdoor access. The animals are all slaughtered at slaughterhouses owned by Danish Crown (Hansen, L.G., interview, April 22, 2003; Friland).

6.2.1.2 Tulip Food Company

A 2002 merger of Tulip International, Danish Prime and Steff-Houlberg resulted in the formation of Tulip Food Company, which is a subsidiary of Danish Crown. This was the largest merger in the Danish meat-refining sector. The annual turnover for 2001/02 was 6 million DKK, which was a 6.7% increase from the previous year. Tulip's sales for the same year were 92,784 tons, which was an increase of 15% from the 2000/01 year.

Innovation and product development are very important to Tulip Food Company. According to Bent Olesen, development manager for Tulip Food Company, "It is our ambition that the product development department will define new product areas which can ensure that Tulip remains in the forefront with future consumer requirements" (Tulip Food

Company). Clearly innovation and product development are integral to the success of the Tulip Food Company[14].

6.2.2 Farre A/S

Farre A/S has been producing organic meat products since the year 2000, and has been certified as organic for the entirety of their producing organic products. Farre A/S produces only 100% organic products in a production facility separate from where their conventional products are produced. Farre A/S purchases the raw meat materials from Friland Foods and Danish Crown, and buys 100% organic raw materials from Sweden. Their product line consists of three different pâtés, frankfurters, wieners, meat sausage for slicing, bacon and cooked ham.

Farre A/S's animals are treated in a manner compliant with the Danish organic regulations. In addition to adhering to the regulations, the animals are fed 100% organic feed. Aside from following the regulations, Farre A/S does not have any social or ethical responsibilities that differ from their conventional animals.

The markets for Farre A/S's products are Fakta, Aldi, ISO and Prima Shops. The first markets for Farre A/S's products were Fakta and through COOP. Some products are exported to England. Farre A/S purposely does not market their products in private and small chain supermarkets because the larger supermarket chains are most profitable. The products are in high demand because they are of high quality.

The new products developed by Farre A/S have recently been sliced salami products of a very high quality standard. Farre A/S selected these products because there was a lack of them in the market. Generally, new products are developed at Farre A/S with the idea that the company is not making conventional products in an organic matter, but brand new

[14] We were unable to interview a representative from Tulip Food Company and additional information about their marketing strategies was not available through their 2001 annual report or their website.

organic products. In developing new products, Farre A/S tries to ascertain what products young people are interested in, because they are a group buying many organic products (Franzen, H., interview, April 11, 2003).

6.2.3 Hanegal

Hanegal has been an organic meat producer since 1994. In the beginning Hanegal produced raw meats and later produced sausages, prepared meats and bacon. Hanegal has two facilities, the slaughterhouse in Silkeborg and a factory in Haderslev. The factory is the main production facility. The ownership of Hanegal is vested in stocks, 93% of which are owned by the director Kern Ulrich Hansen and his wife Fie, and the remaining 7% owned by the farmers. Hanegal is currently looking for a new investor for the company.

Hanegal's product line consists of eighteen different prepared meat products, including the Danish specialty leverpostej, smoked and non-smoked sausages, bacon, meat for butchers and frozen meat for supermarkets. All of the products are 100% organic. Hanegal's total economic turnover is about 26 million DKK annually, 70% of which comes from prepared meats, the rest from fresh or frozen meats.

Hanegal, as a whole, stresses animal welfare and environmentally sound production. Hanegal's animals are housed outside with access to shelter. Also, when animals are received from the farmers they are housed together at Hanegal so that they are more comfortable and less nervous in the new surroundings. The company's slaughtering plan allows for the animals to have access to fresh air prior to being slaughtered. The animals are predominantly slaughtered by first delivering electric a shock to the head and then slitting their throats. Few animals are shot in the head. Hanegal's pigs are not fed 100% organic feed, but their feed does comply with the Danish organic regulations.

The pigs are purchased from fifty farmers who are members of a delivery association and have stock in Hanegal. These farmers are the principal suppliers to Hanegal, but the

company will buy from other companies if need be. One of Hanegal's animal welfare policies is to pay more for pigs that are raised and spend their whole lives on a field.

Hanegal's products are marketed in two Danish supermarket chains, COOP Denmark and Dansk Supermarked. Hanegal will also sell its products to other supermarkets outside of those two chains. In addition to the markets, Hanegal sells its fresh and frozen meat to some institutional kitchens. Hanegal has attempted to sell its products in England and Sweden, but has had very little success. Box schemes were also looked into as a new avenue for marketing, but they were not profitable.

Demand for Hanegal's products is small when compared to the demand for conventional products. Yet when considering that Hanegal's products are very well known among organic consumers and stocked in many supermarkets, demand is sufficient to keep the company in business.

Hanegal introduced six new products last year in efforts to keep their place in the market and stay competitive with Tulip. Hanegal's product development strategy is to introduce new products that are very different from ordinary products, and focus on producing niche organic products. Last year's new products include pâté without pork, all beef sausage, low fat and allergy friendly sausage and low fat smoked products. The ideas for the new products came largely from the opinions of consumers and supermarket chains.

Also, to stay competitive in the market Hanegal has adopted the new marketing strategy of focusing on the high quality of its products and less on the fact that they are organic. As part of this strategy a new package label was introduced stressing the Hanegal brand, de-emphasizing the Danish organic seal and telling a story about the company on the back of the packaging. The impetus behind the new strategy was to differentiate Hanegal's products from Tulip's products (Borgen, M., interview, April 8, 2003).

7.0 Retailer Strategies

The retail industry is a major actor in the organic food market because most organic companies market their products in the supermarkets. This section summarizes the strategies of one major cooperative of supermarkets, COOP Denmark and one of its chains, Irma. The information was amassed from three interviews and is not representative of the entire retail food industry in Denmark.

7.1 COOP Denmark

COOP Denmark is a cooperative chain of supermarkets in Denmark including Kvickly, SuperBrugsen, Irma, Fakta and Net Torvet. The company first began selling organic products in some stores of some chains in the 1980s. Yet, organic products were not consistently stocked in their stores until 1993. The motivation in stocking organic products was that COOP Denmark thought it would have a niche market. At that time there were only eight to ten different organic products in the stores, mainly milk and carrots. Now COOP Denmark carries 700-800 organic products. COOP Denmark's market share of organic products is about 38% of the organic retail market.

The stocking, selling and marketing strategies for organic products differ among the seven COOP Denmark chain stores according to their market position. The larger stores, like Kvickly and Irma, stock more organic products than Fakta, the discount store. The stores also have different organic products depending on their location, with stores in Copenhagen and Århus stocking the largest quantity and most variety of organic products because demand is higher in cities than in smaller towns. There are also seventy out of 295 SuperBrugsen stores, mostly in Copenhagen and Århus that are "Green Shops" and stock more organic products than other SuperBrugsen stores. These "Green Shops" are also visited by the "Green Caravan" which provides bargains on organic products, taste samples and activities (FDB Annual Report, 2001). Lastly, there are twenty Kvickly stores that sell and stock more

organic products than the others. The shops stocking more organic products were selected based upon where consumers live. Despite the fact that some COOP Denmark chain stores stock more organic products than others, all the chains stock the same brands of organic products.

COOP Denmark's largest suppliers of organic products are Arla Foods and other producers of similar size. For meat products, COOP Denmark purchases from Friland Foods and Hanegal. COOP Denmark's strategy in selecting organic suppliers does not differ from its selection of conventional suppliers. The organic companies are not treated differently because they are organic. The organic companies must meet COOP Denmark's supply demand of delivering quality products at a consistent price. COOP Denmark will purchase products from both small and large companies, as long as they can meet demand and the company's product is marketable to consumers. Organic products will always be on the shelves of COOP Denmark chain stores as long as consumers are buying them (Werge, M., interview, April 15, 2003).

7.2 Irma

The Irma chain of supermarkets is one of the chains of COOP Denmark. Irma markets began stocking organic products during the 1980s. The initial motivation for stocking organics was to expand upon Irma's range of high quality, special products. During the early 1980s these quality products were often organic products. Also, many consumers were interested in organic products.

Currently, Irma's organic meat department includes organic chicken, charcuterie, other meats, liver pâté and sausage. Hanegal supplies all the charcuterie and Danish Crown and Friland supply other products. Out of all the organic meats, liver pâté is the most demanded. On average, organic meats account for 10% of all meat sales at Irma, which is

much greater than the national market share of 1%. The main barrier for retail chains in stocking organic meats is their high price.

Customers are not always satisfied with the selection of products in Irma stores. Often the consumers will demand a new product, but once the product is actually in the store the consumers do not buy it. If the product is not selling, Irma will not keep it in stock. Roughly only one out of ten new products Irma tries to sell is successful.

The companies that supply to Irma stores have always been able to meet the supermarket's supply demands. The main motivation of Irma in selecting supply companies is to find ones that will be able to meet Irma's supply demands in the long run. Irma has tried to do business with small companies, but within two to three months the companies go out of business or otherwise cannot meet supply needs, according to Mogens Werge, Key Account Manager for COOP Denmark. The smaller companies are also not usually able to develop new products, which Irma likes to stock.

8.0 Analysis of Key Products

Organic milk and bacon were thoroughly investigated through interviews of the actors in the market. The two products represent different extremes of the organic market. Organic milk has a large, stable, profitable market, whereas organic bacon has a small, uncertain, less profitable market. Because of the differences in market size and profitability, there is more competition and consolidation in the dairy sector than in the pig sector, yet, the organic pig sector is not completely devoid of consolidation and competition. The different market situations cause the milk and bacon industries to face very dissimilar problems.

8.1 Analysis of the Milk Market

The organic milk industry in Denmark is extremely well developed. Organic milk sales accounted for 27.2% of all milk sales in Denmark in 2002 as found by GfK ConsumerScan for Økologisk Landsforening (Nielsen, T.K., interview, April 9, 2003). The market's large size has caused growth to stagnate. In turn, stagnating growth has created the issues in the market described below.

8.1.1 Competition Issues

All the dairies in Denmark are in competition with each other, but their common competitor is Arla Foods. Øllingegaard Dairy is very concerned about competition from Arla Foods. The concern manifests itself in the dairy being run in an old-fashioned manner with old packaging machines and without computers so that there is greater control over the product (Krohn, M., interview, April 2, 2003). Thise Mejeri is likewise aware of the competition between it and Arla Foods. Fortunately for Thise Mejeri, the Danish sentiment that "small is beautiful and big is bad" translates into consumers buying Thise Mejeri's products out of sympathy to the company and dislike of Arla Foods (Poulsen, M., interview, April 7, 2003).

Politically, it is important that Thise and other small dairies exist so that Arla Foods does not have a monopoly over the milk market. (Poulsen, M., interview, April 7, 2003). There have been complaints of unfair competition by Arla, specifically the company suppressing prices to eliminate competition. These claims have been investigated several times by the Danish Institute of Competition which has found nothing conclusive (Christiansen, J., Jacobsen, B., & Jacobsen, L.B., interview, April 1, 2003). Arla denies complaints of unfair competition with the fact that the dairy only has a 7% market share of dairy products within the European Union. Because Denmark is part of the EU, this percentage is not enough to determine that Arla has a monopoly. However, despite Arla's monopoly denial the company also states that, "if there is someone [in the market] we want to crush, we can crush them" (Hougaard, E. & Jeppesen, K., interview, April 8, 2003). Even though Arla may not have a monopoly over the Danish milk market, the company is the largest competitor in the organic milk market as section 5.6 clearly shows.

8.1.2 Consolidation Issues

From a purely economic standpoint, the profitability of the organic milk industry makes it interesting for large companies to enter it and buy smaller dairies to increase their market share. Yet, large companies would be interested in entering any profitable industry, so this trend is not endemic to milk. Arla Foods is notorious for consolidation in the industry and has even been described as being "quite aggressive in consolidating dairies" (Tvedegaard, N., interview, April 7, 2003). Because of consolidation Arla Food's total market share of conventional and organic products has grown from 40% in the 1980s when the company was MD Foods to its current share of 90% (Hougaard, E., & Jeppesen, K., interview, April 8, 2003). Arla's most recent consolidation was the purchase of Økomælk on January 1, 2003. Yet this consolidation has not caused any structural changes in the company, and they were allowed to keep the Økomælk brand and not market their products

under the Arla brand (Poulsen, K., interview, April 2, 2003). Arla's motivation in keeping the Økomælk brand was to continue to market the milk under its well-respected brand name (Hougaard, E. & Jeppesen, K., interview, April 8, 2003).

Recently consolidation in the organic dairy sector has slowed. This is largely because there are few dairies left to be bought (Eriksen, B., interview, April 4, 2003). Consolidation in the dairy sector appears to be a natural market occurrence because of the profitability of the market. Also, due to the profitability of the market and high consumer demand, smaller dairies are able to stay competitive with the larger dairies despite great consolidation.

8.1.3 Innovation

The stiff competition and consolidation in the organic dairy industry causes the small dairies to employ strategies of differentiation or niche marketing. These tactics include developing specialty cheeses or yogurts, or supplying to retail outlets other than supermarkets (Eriksen, B., interview, April 4, 2003). Each of the smaller dairies has their own strategy for innovation and product development. Thise Mejeri's innovative strategy is to create niche products that Arla will not typically copy (Poulsen, M., interview, April 7, 2003). Øllingegaard Dairy strives to supply the freshest milk possible through collecting and processing milk at night and delivering it to supermarkets in the morning. The dairy will develop innovative products, but does so only to stay competitive not out of an interest in being innovative (Krohn, M., interview, April 2, 2003). Økomælk also works to supply fresh milk through processing orders during the day and delivering the milk to supermarkets in the morning (Poulsen, K., interview, April 2, 2003). Naturmælk's product development strategy is aimed more at meeting consumer demand in that they are expanding their product line so that consumers can buy all their dairy products from Naturmælk. This strategy is also to combat competition, so that Naturmælk consumers do not have to buy their products from other dairies (Jørgensen, L., interview, April 25, 2003). Clearly not all the dairies are

focusing on product development, some are oriented toward increased product quality, but all are working to set their products apart from competing products.

Innovation is not free from competition, as the development of minimælk by Thise Mejeri and Arla Foods demonstrated. Thise Mejeri introduced minimælk about two weeks prior to Arla introducing their minimælk, both in year 2001. Minimælk has been a great success in increasing sales for both companies. Even though Arla's minimælk was introduced at roughly the same time as Thise Mejeri's the sales of Arla's product were not decreased. Arla's market share of organic milk also increased following the introduction of minimælk, from 23% to 30% (Hougaard, E., & Jeppesen, K., interview, April 8, 2003; Poulsen, M., interview, April 7, 2003). Fortunately for both companies, there were enough interested consumers for both companies' products to be successful.

Supermarkets serve as a filter for innovation in many cases. The retail sector is often reluctant to buy organic products, and may even request a conventional counterpart. Grocers are very aware of their shelf space and will only stock products they know are demanded by consumers (Eriksen, B., interview, April 4, 2003; Werge, M., interview, April 15, 2003; Klockmann, A., interview, April 25, 2003). Yet clearly the supermarkets are not completely inhibiting innovation. Instead, they have caused the innovative dairies to be more in tune with consumer demands so that they can develop products wanted by consumers. Naturmælk, for example, has recently developed new products at the demand of its customers (Jørgensen, L., interview, April 24, 2003).

8.1.4 Surplus Issues

The organic milk surplus is a problem created by Arla because the market was very profitable and they wanted a large share of it. Because Arla has too many long-term contracts with its organic milk farmers there is currently a 60% surplus of organic milk that cannot be sold as such. Arla has also been criticized for lacking product development,

innovation and marketing of their organic milk, which have also contributed to the surplus (Jørgensen, M.S., interview, April 30, 2003). The surplus volume is mixed with conventionally produced milk and sold as conventional. This situation is not profitable for Arla because they must pay the organic farmers more for the organic milk, even though the milk may be sold as conventional (Eriksen, B., interview, April 4, 2003). Arla is attempting to alleviate the surplus by discouraging farmers from converting and lowering the bonus paid to them for their organic milk (Hougaard, E. & Jeppesen K., interview, April 8, 2003). Because Arla is also not accepting any new organic farmers, few additional farmers are converting to organic farming (Tvedegaard, N., interview, April 7, 2003). Lowering the price paid for organic milk has caused some farmers to convert back to conventional production because of the decreased profitability of organic milk production (Eriksen, B., interview, April 4, 2003).

The organic milk surplus is a problem for the entire milk industry as well. It is an issue for conventional farmers because they believe their prices are driven down by the surplus (Christiansen, J., Jacobsen, B. & Jacobsen, L.B., interview, April 1, 2003). The surplus of milk may also result in organic production becoming less profitable because the prices paid to organic farmers may decrease (Eriksen, B., interview, April 4, 2003). The organic milk surplus occurred because of a sudden, dramatic increase in consumer demand coupled with a knee-jerk reaction by Arla to enter a potentially profitable market. Now the surplus has become a problem not only for Arla, but also for the industry as a whole.

8.2 Analysis of the Bacon Market

The organic meat market as a whole in Denmark is very small, and organic bacon is just a tiny subset of the entire market. Many of the problems, detailed below, are endured by organic bacon production companies because of the small size of the market. In 2002, organic pork sales accounted for just 0.4% of the entire pork market, as found by GfK

ConsumerScan for Økologisk Landsforening. In 2001, the market share of organic pork was 0.3% (Nielsen, T.K., interview, April 9, 2003). Clearly there is minor growth in the market, but it comes with great difficulties.

8.2.1 The Conversion Barrier

Conversion to organic pig production cannot be accomplished without large capital investments. Niels Tvedegaard, an organic farmer and researcher at the Danish Research Institute of Food Economics, has worked extensively with developing plans for the conversion of organic farms, including pig farms. Through his research, Tvedegaard found that conversion to organic pig farming from conventional pig farming on the basis of farm size alone is nearly impossible. Conventional pig farming is suited to large-scale operations, whereas organic pig farming is better for small-scale production. Also, conventional pig farmers tend not to invest in farms that allow adequate space for organic pig production, and therefore are nearly impossible to convert (Tvedegaard, N., interview, April 7, 2003). Unfortunately for the organic pig production industry, farms cannot be easily converted as they can with the dairy industry. Since conversion is so expensive most conventional pig producers will not convert, stifling growth of the organic meat market.

8.2.2 The Market Size Barrier

The conversion barrier contributes greatly to there only being a few organic bacon producers in Denmark, namely, Farre A/S, Friland Foods marketed under Tulip, and Hanegal. Yet the conversion barrier is not the only reason for the small market for organic bacon. Since the market share for organic meats is so low, organic bacon production is not greatly profitable (Borgen, M., interview, April 8, 2003). Unprofitable and inefficient production causes organic pig producers to charge high prices for their products. The high prices discourage consumers from buying the products, which further decreases the production firm's profits (Tvedegaard, N., interview, April 7, 2003). Consumer interest tends to be less

for organic meats, largely because the organic movement began mostly with vegetarians, and because the first organic meats were very poor quality (Damsgaard, L., interview, April 9, 2003; Werge, M., interview, April 15, 2003). The high prices and decreased profits have created a downward spiral which some small organic pig farms are trapped in.

There seems to be no easy fix to the market size problem. The organic farms cannot combat it by lowering their prices because the nature of organic pig production is expensive. The smaller companies are also not in financial positions to invest in developing the market, and supermarkets do not see market development as their role (Borgen, M., interview, April 8, 2003; Nielsen, T.K., interview, April 9, 2003). Unless the market begins to grow, organic pig production will become increasingly expensive, possibly driving the small companies out of the market entirely because consumers will not buy their expensive products.

8.2.3 The Supermarket Barrier

The small market size becomes a tangible problem when organic pig farms attempt to market their products in supermarkets. Supermarkets are the only economically profitable location for selling organic meats (Borgen, M., interview, April 8, 2003). Hanegal, Farre A/S and Friland A/S all market their products primarily in supermarket chains; Hanegal selling to COOP Denmark and Danske Supermarked chains and Farre A/S selling to Fakta, ISO, Aldi and Prima stores (Borgen, M., interview, April 8, 2003; Franzen, H., interview, April 11, 2003; Hansen, L.G., interview, April 22, 2003). Both small organic bacon producers, Hanegal and Farre A/S are able to market their products in supermarkets, but not without a struggle.

In order to market a product in a supermarket, the producer must be able to meet the supermarket's supply and quality demands (Werge, M., interview, April 15, 2003; Nielsen, T.K., interview, April 9, 2003). Often, the supermarkets demand a quantity too large for a small company to be able to supply (Christiansen, J., Jacobsen, L., Jacobsen B., interview,

April 1, 2003; Werge, M., interview, April 15, 2003). If a small company is able to supply enough to the supermarket, its problems do not end. Once the products are on the supermarket shelves, smaller companies tend to have more marketing troubles than larger companies. The small companies do not have much money for advertising and may not be able to meet supply demands if their products are on sale (Werge, M., interview, April 15, 2003). To help ease the financial burden of advertising products in supermarkets, Organic Denmark runs promotion campaigns for different products. Currently, between weeks 14 to 34 of 2003, an organic meat campaign is running to help increase the market share for organic meats, specifically deli meats (charcuterie). Retail chains do little to help the producers because they believe they are merely supplying shelf space and the producer will do its own marketing, whereas small producers think that retailers should be helping them to market their products in the supermarket (Nielsen, T.K., interview, April 9, 2003). It becomes constant work for these small meat producers to keep their products in supermarkets because other companies want a piece of the market (Borgen, M., interview, April 7, 2003).

In addition to space in the market, only certain types of products are demanded by the supermarkets. The COOP Denmark chain looks for high quality, innovative organic products (Werge, M., interview, April 15, 2003). In producing its products, Farre A/S strives to make the highest quality products because they are in high demand (Franzen, H., interview, April 11, 2003). Despite the extensive product line Hanegal possesses, the company is constantly afraid that it will not have enough supply or variety for its products to be demanded by the supermarkets (Borgen, M., interview, April 8, 2003).

The supermarket barrier is a huge issue for small companies like Hanegal and Farre A/S who may be struggling to meet the supermarket's supply demand and have no money left for advertising. This barrier is a major problem for future growth of the organic bacon market.

8.2.4 Consolidation and Competition

Consolidation in the organic meat sector has not been as common as with other sectors. Since the organic meat industry is not very profitable it has not been of interest for larger companies to get into (Borgen, M., interview, April 8, 2003). Yet Danish Crown recently purchased 60% of Friland Foods, so there has been some consolidation in the market (Friland A/S). The general effects of consolidation in the meat market are lower prices for farmers while the consumer price stays the same (Tvedegaard, N., interview, April 7, 2003). Specifically, as a result of the consolidation of Friland Foods into Danish Crown, Hanegal's market for its organic bacon was severely decreased. Instead of buying Hanegal organic bacon, COOP Denmark stores began buying Danish Crown bacon marketed through Tulip because it was cheaper. Now Hanegal organic bacon can only be found in Irma stores. Fortunately for Hanegal, bacon was never their most profitable product and their product line is diversified (Borgen, M., interview, April 8, 2003).

Competition between the small organic meat producers and Tulip is not a large problem for the small producers. Hanegal views the competition as more of a potential threat than an actual threat. Currently Tulip is only producing bacon, if they were to make more processed products, competition from Tulip would become a huge problem for Hanegal (Borgen, M., interview, April 8, 2003). Farre A/S was also not worried about competition because its products are high quality (Franzen, H., interview, April 11, 2003).

Because of the small size and low profitability of the organic pig production industry, there has been little consolidation. Luckily for small companies, large companies are not yet interested in a piece of the organic meat pie.

8.2.5 Innovation as a Strategy

Even though firms in the organic pig production sector are not currently struggling with consolidation, they are dealing with many other market issues that require them to develop innovative products. Last year alone, Hanegal developed six new products to help

keep their place in the market and avoid competition from Tulip. Hanegal focuses on making niche products because Tulip cannot easily copy them and steal the market (Borgen, M., interview, April 8, 2003). Farre A/S has also developed new, high quality salami products. Farre A/S tries to develop products that are not currently for sale in the market (Franzen, H., interview, April 11, 2003). Both Hanegal and Farre A/S develop new organic products, instead of producing mainstream products in an organic way (Borgen, M., interview, April 8, 2003; Franzen, H., interview, April 11, 2003). Both Hanegal and Farre A/S develop innovative, quality products to set them apart from Tulip and keep their products in the market.

9.0 Future Prospects for Organic Dairy and Bacon Markets

9.1 Future Roles in the Danish Dairy Market

With one of the highest market shares amongst organic products, the dairy industry has reached a state of maturity. For this reason, growth and consolidation in the short term are not expected. The mature market is not without problems to be solved.

9.1.1 Competition Strategies

There is no way to avoid competition in the organic milk industry, there are simply many dairies each wanting their own piece of the market. Arla will always be larger than the other dairies, since it is a multi-national company and the Danish dairies are not. Arla will likely continue to grow, especially in other countries, but, fortunately for the small dairies, it does not appear to be in their interest to acquire additional Danish dairies.

This leaves the smaller dairies with a very large competitor with a goal of acquiring the largest market share possible. Arla has the ability to out-compete any other company because of its financial resources and large product line. The smaller dairies will benefit greatly from maintaining their current strategy of differentiating themselves from Arla when competing in the organic milk market and developing niche markets such as specialty cheeses. By employing niche marketing strategies, these companies can actually see improved financial performance. A study by the Strategic Planning Institute found that return on investment averaged 27% for smaller markets, as opposed to 11% for larger markets (Kotler, 1997).

However, in order for differentiation strategies to work, the differences between products must be significant to consumers. Public education efforts by groups such as NOAH could be helpful in this area. A number of our interviewees have cited the fact that consumers are seeking organic products because of their purported health benefits and higher quality, as opposed to environmental benefits. For this reason, a public information

campaign should take less of a "green" angle than previous NOAH campaigns may have pursued. Green benefits should not be ignored, but they should not be the point of primary emphasis.

A second method for staying competitive with Arla would be for the smaller dairies to strategically select where they market their products. All of the small dairies are already doing this in the domestic markets. Thise has its contract with Irma, Naturmælk supplies to DSB convenience stores, and Øllingegaard markets in the ISO supermarkets. It has been commented that, "supermarkets are a major barrier to small companies being successful" (Michelesen, J., interview, March 25, 2003). It would be beneficial for the small dairies to look for alternative marketing avenues so that they are not relying on supermarket sales for all their profits. It would be difficult for dairies to sell milk through box schemes, but marketing directly to consumers, possibly at a store at the dairy or through local markets, could boost sales.

In addition to direct marketing, dairies could explore marketing in foreign markets. Thise Mejeri is already employing this strategy with cheeses in Norway and the United States (Poulsen, M., interview, April 7, 2003). The main barrier to Danish organic dairies marketing their products in foreign markets within the European Union is a unified organic labeling system (Klöcker, A., interview, April 23, 2003). Another barrier to exporting products stems from an increasing focus on locally grown and produced products. Once all the European Union countries are regulating organics with the same set of rules and using the same labeling system, this barrier will be broken down. Our research did not explore the current work with the organic labeling system in the European Union and we therefore do not know when this barrier may fall.

9.1.2 Staying Independent

Consolidation has become a less frequent occurrence in the Danish organic dairy market because many small dairies have already been bought by larger dairies. Also, the small dairies have created a niche market for themselves with innovative products or production strategies. The key tactic small dairies should employ to remain independent is intensive product development in areas where consumers are most interested. The dairies could work directly with consumers to determine which products to develop. Since the small dairies accept innovation as a necessary activity required to stay in the market, it will not be difficult for them to continue their product development actions to keep their place in the market.

9.1.3 Eliminating the Surplus

Currently, the major problem in the Danish organic milk industry is the milk surplus. As discussed previously, the surplus of organic milk created by Arla is a problem for the entire milk industry, both conventional and organic. It has created negative sentiments about organic milk production from the conventional farmers because the conventional farmers believe they are paying for the excess organic milk since the excess organic milk is sold as conventional (Eriksen, B., interview, April 4, 2003). The easiest way to eliminate the surplus would be to increase consumer demand for organic milk. Also, more processed organic dairy products could be developed, such as cheeses and yogurts, enabling the excess organic milk to be used as organic instead of conventional.

A second strategy for eliminating the surplus would be for the organic milk farmers to convert back to conventional production. This tactic is already in practice with some farmers who are losing money because the price premiums for organic milk are falling (Eriksen, B., interview, April 4, 2003). However converting to conventional production is not a feasible option for the farmers who believe in the ideals of organic production. Only the farmers who entered the organic milk market because of the profits will convert back to

conventional production. Our research did not delve into how many organic farmers got into the organic milk industry for the profits, therefore we cannot predict how many farmers will leave the market if the price premiums continue to decrease.

9.1.4 Future Growth

Growth in the Danish organic milk market is not expected in the short term. The organic milk surplus is driving down premiums paid to farmers and making it uninteresting and unprofitable for new farmers to convert (Eriksen, B., interview, April 4, 2003). It is also very difficult for dairies to get into the market because it is dominated by three main companies[15] (Poulsen, K., interview, April 2, 2003). Yet growth in the organic dairy industry in general can be expected, especially if Arla begins using the excess organic milk to make more processed dairy products, such as specialty cheeses and yogurts.

9.2 Fate of the Danish Organic Bacon Market

With all the barriers and issues affecting the organic meat market in general its fate is not easy to determine. In the simplest terms, the market needs to grow in order for it to continue to exist. In order for the market to grow, the barriers in it need to be surmounted. There are many plausible solutions for overcoming these barriers.

9.2.1 Greater Subsidies and Increased Research

One way to increase growth in the organic pig sector is to increase the money going into the industry by increasing subsidies to the farmers. The Danish Directorate for Food, Fisheries and Agribusiness promotes organic pig production mainly through the subsidy system it administers. The subsidy scheme includes five years of payments during the initial conversion period and a minor payment after conversion to maintain the organic operation (Klöcker, A., interview, April 23, 2003). These subsidies are the only way for pig farmers to

[15] During the interview, Kjarten Poulsen did not elaborate on which three dairies are dominating the market. We can assume that two of the dairies are Arla and Thise Mejeri, but we are not sure who the third dairy would be.

feasibly convert to organic production and stay financially stable. Unfortunately for organic producers, the subsidies cease after about five years and the farm is forced to stand on its own. For more profitable, less expensive to convert industries like dairy, the cessation of subsidies is not a huge problem. Yet for organic pig producers that may be operating inefficiently and possibly at a deficit, the loss of the subsidy money is a huge problem. If the Danish government is truly interested in promoting the organic pig production sector it should seriously consider reconstructing the subsidy scheme.

A more helpful scheme would include a longer time period for the payment of subsidies. A longer time period would also make conversion into the industry more interesting because one reason farms are not converting is that the organic meat industry is unstable (Tvedegaard, N., interview, April 7, 2003). If pig farms wishing to convert to organic production were guaranteed certain sums of money over a ten to fifteen year period they would not be so hesitant to invest in a small, unprofitable industry. A possible reconstructed subsidy scheme would retain the subsidies for the first five years of conversion, then for the next five to ten years, subsidies could be given on a decreasing scale.

Extensive research into the organic pig production sector could accompany the reconstructed subsidy program. Specifically the farms receiving subsidies could be investigated to determine why some may be successful while others are struggling. Research projects in organic pig farming are currently being conducted by the Danish Research Centre for Organic Farming (DARCOF). The projects for 2003 include investigating pig feed and feeding strategies, health management, new systems in organic pig production and product quality and consumer perception of pork products (DARCOF). General research about organic pig production as done by DARCOF and research into the marketing and innovation strategies of specific organic pig production companies will further

enable growth in the industry through increased know-how. Research efforts could also be devoted to developing more efficient organic pig production methods.

The extra money organic pig production firms would receive through a reconstructed subsidy scheme and the knowledge from increased research would have many effects. The subsidy scheme would alleviate the high conversion costs, and the research could help decrease production costs. Less expensive production would make it easier for small companies to meet the supply demand of supermarket chains, because more products could be produced for the same cost. The production companies would also have more money to spend on marketing and advertising, prices could be lowered for consumers and product development could occur, solving additional market problems.

9.2.2 Increase of Consumer Interest

The organic bacon market will continue to be unprofitable unless more consumers purchase organic bacon. Unfortunately for the market, there are negative consumer opinions about organic meats; the most important being that pig production in general does not fit into organic ideals (Klöcker, A., interview, April 23, 2003). The consumer perception of organic bacon must change in order for consumer interest to grow. One possible method for change would be greater consumer awareness of the conventional pig industry and any problems in it (Klöcker, A., interview, April 23, 2003). This project did not evaluate potential problems in the conventional pig production sector. However, this may be a place for further research to determine if there are serious production problems either in terms of animal welfare issues or harmful substances in the feed. If such problems were uncovered, demand for organic pig products would increase just as demand for organic milk products increased in 1995 in Denmark when the drinking water was found to be contaminated with pesticides (Krohn, M., interview, April 2, 2003).

Because problems in the conventional pig industry have not been recently uncovered, the primary method for increasing consumer interest is through marketing campaigns. A promotional campaign in 2003 was organized by Organic Denmark to increase the market share of organic meats above its current level of 1% of the market, including raising the organic pork market share above 0.4%. Campaigns such as this are a collaborative effort by the production facilities, specifically Friland A/S, Farre A/S and Hanegal for the 2003 campaign, and the retail sector (Nielsen, T.K., interview, April 9, 2003). Marketing campaigns of this variety are successful in increasing consumer awareness of the organic products, as there is a substantial amount of advertising within supermarkets.

This project did not investigate the short and long term effects for the production companies of these campaigns, yet this would be a beneficial area for future research. Representatives from both the retail sector and production sector, namely COOP Denmark and Hanegal, share the opinion that it is difficult for smaller companies to meet the supply demands if one of their products is on sale (Borgen, M., interview, April 8, 2003; Werge, M., interview, April 15, 2003). Participating in these marketing campaigns may come at a great cost to the company since they will have to increase their supply to the supermarkets. An interesting area for future research would be to assess the costs vs. benefits for small companies participating in industry-wide marketing campaigns. This would determine if increased consumer interest translated into more long-term sales for these companies.

In spite of any marketing campaign, it will be very difficult to increase consumer interest unless the price of organic bacon drops. Yet it is nearly impossible for organic bacon producers to lower the price of bacon because their production expenses are so high. This is where a reconstructed and better funded subsidy scheme and more efficient production methods would be beneficial so that the production costs to the companies can be lowered.

9.2.3 Product Development and Innovation

To be profitable as an organic meat producer, companies often choose to market their products in supermarkets because they offer the greatest market share (Borgen, M., interview, April 8, 2003; Franzen, H., interview, April 11, 2003; Hansen, L.G., interview, April 22, 2003). Yet not all products are stocked by supermarket chains, which tend to look for high quality, innovative products (Werge, M., interview, April 15, 2003). If a small organic production company is able to meet the supply demands of a supermarket chain, the key strategy to keeping its products on the shelves is through product development and innovation.

Both Hanegal and Farre A/S produce high quality, innovative products and strive to develop completely new products that are not found in either conventional or organic markets (Borgen, M., interview, April 8, 2003; Franzen, H., interview, April 11, 2003). Their strategies have helped the companies keep their places in the market and have contributed to growth of their market shares.

High quality, innovative products are essential to efforts by Farre A/S and Hanegal to stay competitive in the market (Borgen, M., interview, April 8, 2003; Franzen, H., interview, April 11, 2003). Their largest competitor, Tulip, only produces mainstream organic products through Friland, not niche products like those offered by Farre A/S and Hanegal. It would be beneficial for the two companies to cooperate on their product development initiatives so that both companies are not developing the same products. The cooperation would ensure that the two small organic meat producers are not in direct competition with each other, have product lines that differ and may even complement each other. This strategy is being successfully employed in the dairy industry by Thise Mejeri with its cooperation with Gedsted and Grindsted.

9.2.4 Future Growth

The market share for organic meat pork products is a meager 0.4%, so there is much room for growth if barriers discussed previously are overcome. Unfortunately for the small producers a new set of problems arises if the market grows to be more profitable. A more profitable market will cause companies like Tulip to want a piece of the profits. Currently, Tulip is not interested in producing niche organic meat products because the market is not large and therefore Tulip only produces organic bacon (Borgen, M., interview, April 8, 2003). Yet if the market becomes profitable, Danish Crown, owner of Tulip, may apply its strategy of consolidation to the organic market and purchase small companies like Hanegal and Farre A/S, just as it did to Friland A/S. Thankfully for the future of Hanegal and Farre A/S, consolidation in the organic meat market will not become a huge threat until the market grows. Currently, even though there has been some consolidation in the market, the threat is more potential than actual.

10.0 Conclusions and Recommendations

As the Danish organic food market approaches maturity, this study has found a strong shift from the idealism that motivated the original organic food pioneers to a more business-oriented approach. This is exhibited by large companies like Arla and Danish Crown who get into the organic market because it is profitable. We find that this is a natural part of the market's expansion. Furthermore, it is a necessary part of the widespread adoption of organic food by mainstream consumers that Denmark has seen over the last decade. However, we still do find the need for idealistic producers and retailers in the market to continue to advance progress, since it is these producers who are often developing new products and stimulating the market.

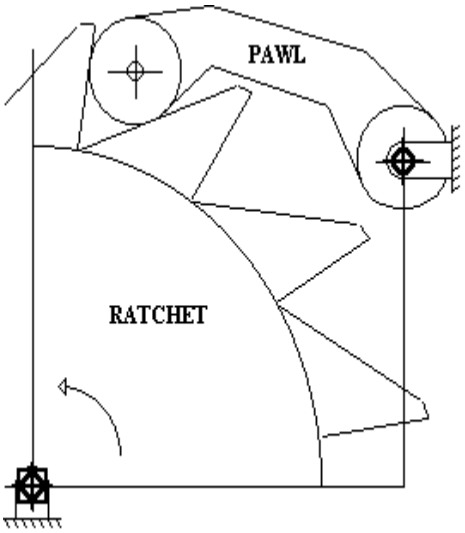


Figure 23: Model of Ratchet ***adapted from (BYU, 2003)***

A ratchet is a useful metaphor for this process (Pirsig, 1991). The idealistic companies provide the innovative force which turns the ratchet (in this case, the organic food market) in the direction of the curved arrow in the lower left corner of Figure 23. The business-oriented companies act as the pawl, holding the ratchet at a new base level, while the idealistic companies work to move the market to the next gear (step). While the ratchet

may slip backward a little when the pawl catches it, its new position represents progress from the previous state of the market.

It should be noted that idealistic companies can serve as both the innovative force and stabilizing pawl. An example of this is Urtekram, which pioneered the organic market, brought their products from coops to the supermarket and continues to remain a dominant player in their market. However, from our research, Urtekram is unique in this role, at least in the Danish market.

The first component of this project was a survey of organic and conventional food selection in Copenhagen area supermarkets. From this, we found large companies had made significant entrances into organic milk, bacon and ketchup markets. The organic peanut butter and rice cake markets have not seen large competitors enter the market in the same way that the other products have.

Through surveys and interviews, it was apparent that intermediate to high levels of formal integration allow small organic food producers to remain competitive in the organic food market. The long term partnership between Thise and Irma is an example of these benefits. Thise has a willing buyer for its new varieties of cheeses, while Irma is able to market Thise milk under its own brand. A key factor in the success of these relationships is compatibility in size and philosophy between the producer and supermarket.

Based on our research, we recommend that small producers continue to pursue niche markets and strategies of differentiating themselves from their larger competitors. The small producers should also try to form strategic alliances with supermarket chains, so that they will have a profitable marketing avenue for their products. This will allow them to remain competitive while pushing the organic food industry to its next stage, whatever that may be.

Throughout our research, we have found that there is a compelling benefit from having idealistic producers in the market. We believe that the best way for NOAH to help

ensure their continued viability is through informational campaigns. These campaigns should not promote a particular product, but rather provide consumers with the information that they need to make informed decisions when they purchase groceries. Research has shown that Danish consumers want to know more about the companies that produce their food but lack time and resources to research this (Hansen, M. W. & Nielsen, T., interview, March 26, 2003). NOAH, in possible collaboration with consumer groups, could fill this gap. Also, consumers are particularly interested in the health benefits of organic food, so NOAH may want to consider producing a summary of the current research on this topic.

NOAH could also support idealistic producers indirectly by cooperative efforts with groups such as Organic Denmark. Organic Denmark, a trade group for organic producers in Denmark, is actively promoting specific organic product categories as a whole.

These are just a few ways that NOAH can work to promote organic agriculture. Ultimately, continued growth in the organic sector will likely benefit companies that are both idealistic and business-oriented. For this reason, we have included a number of topics for both research and action that will affect various aspects of the organic industry in the next chapter of this report.

11.0 Areas for Future Action

In this project, we sought to focus on one facet of the large issue of organic foods and explore it as deeply as possible. As a result, it was necessary to discard several ideas that had potential but did not fit into the scope of our project. In addition, during our project, we discovered several aspects of the organic food market that should be further explored. We have described both of these categories here. We feel that while some are not directly related to organic agriculture, they all are relevant to NOAH's mission. NOAH should consider these for action within their organization and/or as future IQPs with WPI students.

In general, we feel that small organic producers are in need of support if they are to remain viable. While it is neither NOAH's mission nor position to provide financial support to individual companies, we feel that NOAH could help this entire sector through public information campaigns and studies that alert the Danish population that choices do exist when they purchase food.

- **Study of consumer Willingness To Pay (WTP) for food produced by smaller, idealistic companies:** While there has been much study of WTP for organic food,[16] there has been little study of the premium that consumers associate with food produced by companies with a more holistic vision. The successful entrance of products such as free-trade coffee suggests that such willingness does exist beyond organic products. This project would attempt to gauge such inclinations, which consumers are willing to pay premiums for these qualities, what benefits they associate with these products and how companies can best communicate their visions to potential consumers.
- **"Box Schemes" as a Marketing Tool for Small Farmers:** "Box schemes" are a direct marketing technique in which the farmer ships products directly to the

[16] A concise summary of the eleven consumer studies is found the USDA's *Recent Growth Patterns in the U.S. Organic Food Market* (2002).

consumer. They exist both in the United States and in Denmark and have shown potential in both countries (Hansen, M. W. & Nielsen, T., interview, March 26, 2003). This project would investigate the steps needed for small farmers to implement a successful box scheme. The culmination would be the publication of a guide for farmers who are considering box schemes. Educational literature of this nature has proved effective and could allow smaller farmers to remain competitive (Michelsen, J. interview, March 25, 2003; von Ranson, J., interview, February 7, 2003; Duesing, B., interview, February 12, 2003).

- **A Website to Allow Consumers to Research Farmers and Producers:** In focus groups conducted by Hansen and Nielsen (interview, March 26, 2003), Danish consumers expressed a desire to know more about organic products and the different actors involved in the market. They did not, however, have the time or resources to do this. NOAH could play an important role in the organic food market by providing such information. A website could be set up that provides information about idealistic companies and where to purchase their products.
- **A Report Card on Supermarket/Producer Environmental Standards:** Environmental advocacy groups in the United States often publish "report cards" showing how legislators voted on key issues. There are similar rubrics used by the Danish Veterinary and Food Administration (Fødevaredirecktortet) to assess compliance with organic processing standards. It may be possible to develop a similar system to compare producers and/or supermarkets on their environmental and social practices. This report card could be published in variety of media.
- **A Study of Consumers' Opinions of Corporate Environmental Practices:** Environmental practices vary between food producers. This study would examine consumer attitudes with the practices of companies (perhaps through a report card, as

mentioned above), to determine if consumers are aware of the efforts taken by some companies, what ways these companies can better advertise their environmental practices and what benefits such companies can expect to reap.

- **A Study of Organic Pig Conversion:** Farmers converting to organic pig production face many economic barriers. This project would analyze these problems and make recommendations for changes to subsidy and support systems.

12.0 References

Arla Foods amba, Annual Report 2001/2002.

Arla Foods amba. (2001). Denmark & Organic Production [Brochure]. Viby, Denmark: Author.

Berton, V. (Ed.) (2001). The New American Farmer: Profiles of Agricultural Innovation. Washington, D.C.: Sustainable Agriculture Research and Education Program.

Boons, F. (1998). Caught in the Web: The Dual Nature of Networks and its Consequences. Business Strategy and the Environment, 7, 204-212.

Brenna, C.S. & Kuri, V. (2002). Relationship between sensory attributes, hidden attributes and price in influencing consumer perception of organic foods. In Powell, et al (eds.) UK organic research: proceedings of the COR conference. Aberystwyth: University of Wales.

Council Regulation (EEC) No 2092/91 of June 24, 1991 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs. (1991, June 24). Retrieved January 14, 2003, from the World Wide Web: http://europa.eu.int/eurlex/en/consleg/pdf/1991/en_1991R2092_do_001.pdf.

Danish Crown Group. Annual Report and Accounts 2001/2002. Retrieved April 23, 2003, from the World Wide Web: http://danishcrown.dk/custom/popup_regnskab0102/popup_gb/pdf/reports_accounts.pdf

Dimitri, C. & Greene, C. (2002). Recent Growth Patterns in the US organic food market. Agricultural Bulletin Number 777. Washington, DC: United States Department of Agriculture.

Dunn-Georigiou, Elisha. (2002). Everything You Need to Know About Organic Foods. New York: The Rosen Publishing Group, Inc.

Doyle, J.K. (2001). Introduction to Interviewing Techniques. In D.W. Woods. Handbook for IQP Advisors and Students. Retrieved February 2, 2003, from the World Wide Web: http://www.wpi.edu/Academics/Depts/IGSD/IQPHbook/ch11.html#11.

FDB. Annual Report 2001. Retrieved April 15, 2003 from the World Wide Web: http://www.coop.dk/upload/download_2001.pdf.

Finke, J., Gil, M.S., & Rivard, M.V. (2000). "A Comparison of the Attitudes Towards Genetically Modified Food in the United States and Denmark." IQP Report. Worcester Polytechnic Institute.

Friland A/S (2002). Profile. Retrieved April 23, 2003, from the World Wide Web: http://www.friland.dk/html_english/profile.html.

Govindasamy, R. & Italia, J. (1999). Predicting Willingness-to-Pay a Premium for Organically Grown Fresh Produce. Journal of Food Distribution, 30(2), 44-53.

Greene, C., & Kremen, A. (2002). U.S. Organic Farming: A Decade of Expansion. Agricultural Outlook, 296, 31-34.

Hamm, U., & Gronefeld, F., & Halpin, D. (2002). Analysis of the European market for organic food. Wales: University of Wales Aberstwyth.

Hamm, U., & Gronefeld, F., & Halpin, D. (2002). Summary of analysis of the European market for organic food. Retrieved January 18th, 2003, from the World Wide Web: www.irs.aber.ac.uk/omiard/publications/pdf/OMIaRD_MarketReport2002Summary.pdf.

Henry Doubleday Research Association. (2002). Conversion to Organic Field Vegetable Production. Retrieved January 25, 2003, from the World Wide Web: http://www.hdra.org.uk/pdfs/MAFF_OF0126T.pdf.

Igual, J. F. J., & Izquierdo, R. J. S. (2000). Economic and Financial Comparison of Organic and Conventional Citrus-growing Systems in Spain. Rome: Food and Agriculture Organization of the United Nations. Retrieved January 25, 2003, from the World Wide Web: http://www.fao.org/DOCREP/003/AC117E/ac117e00.htm

International Trade Centre. (1999). Organic Food and Beverages: World Supply and Major European Markets. Geneva: author.

Kotler, P. (1997). Marketing Management: Analysis, Planning, Implementation, and Control (9th ed.). Upper Saddle River, NJ: Prentice Hall.

Kuepper, G. (2002). Organic Farm Certification and the National Organic Program. Appropriate Technological Transfer for Rural Areas through the National Center for Appropriate Technology. Retrieved January 24, 2003, from the World Wide Web: http://www.attra.ncat.org/attra-pub/PDF/organcert.pdf.

Lampkin, N., Foster, C., Padel, S., & Midmore, P. (1999). The Policy and Regulatory Environment for Organic Farming in Europe. (Vol. 1). Stuttgart, Germany: Universität Hohenheim.

Lohr, L. (2001). Factors Affecting International Demand and Trade in Organic Food Products. Changing Structure of Global Food Consumption and Trade/WRS-01-1. 67-79.

Lohr, L. & Salomonsson, L. (1998). Conversion Subsidies for Organic Production: Results From Sweden and Lessons for the United States. Faculty Series, University of Georgia.

Market Research Centre, Canadian Trade Commissioner Service. (2000). The Organic food market in Denmark. Retrieved January 19th, 2003, from the World Wide Web: http://atn-riae.agr.ca/info/europe/e2990.htm.

Ministry of Food, Agriculture and Fisheries, Danish Directorate for Development. (1999). Action Plan II: Developments in Organic Farming. Retrieved January 23, 2003, from the World Wide Web: http://www.dffe.dk/publikationer/Actionplan-II-UK/actindex.htm.

Moon, W., Florkowski, W. J., Brückner, B., & Schonhof, I. (2002). Willingness to Pay for Environmental Practices: Implications for Eco-Labeling. Land Economics, 78(1), 88-102.

Morris, M.H. (1988). Industrial and Organizational Marketing. Columbus, OH: Merrill.

Myers, S. & Rorie, S. (2000, December). Facts and Stats: The Year in Review. Organic & Natural News. Retrieved February 9, 2003, from the World Wide Web: http://www.organicandnaturalnews.com/articles/oc1feat1.html.

National Center for Public Policy Research. (2000, May). Organic Labeling Study. Retrieved April 10, 2003, from the World Wide Web: http://www.nationalcenter.org/OrganicLabel500.html.

Organic Monitor (2002). Great Expectations – Denmark. Retrieved April 24, 2003 from the World Wide Web: http://www.organicmonitor.com/r0904.htm.

Organisation for Economic Co-operation and Development. (2001). Agricultural Policies in OECD Countries: Monitoring and Evaluation. Paris: Author.

Organisation for Economic Co-operation and Development. (2003, February). OECD, Member Countries. Retrieved February 21, 2003, from the World Wide Web: http://www.oecd.org/EN/countrylist/0,,EN-countrylist-0-nodirectorate-no-no-159-0,00.html

Research Institute of Organic Agriculture. (2002, August). Organic Farming in Finland. Retrieved January 19, 2003, from the World Wide Web: http://www.organic-europe.net/country_reports/finland/default.asp.

Rothstein, E. (2001, October 20). A Lethal Web With No Spider. The New York Times, A13.

Park, T. A., & Lohr, L. (1996). Supply and Demand Factors for Organic Produce. American Journal of Agricultural Economics, 78, 647-655.

Pietola, K. S., & Lansink, A. O. (2001). Farmer response to policies promoting organic farming technologies in Finland. European Review of Agricultural Economics, 28, 1-15.

Pirsig, R. M. (1991). Lila: An Inquiry into Morals. New York: Bantam.

Richman, N. J. (2000). The Growing Natural Foods Market: Opportunities and Obstacles for Mass Market Supermarkets. Working Paper. The Retail Food Industry Center. University of Minnesota. Retrieved January 16, 2003 from the World Wide Web: http://agecon.lib.umn.edu/mn/tr00-02.pdf.

Thompson, G. D. (1998). Consumer demand for organic foods: what we know and what we need to know. American Journal of Agricultural Economics, 80, 1113-1119.

Tulip Food Company. About Tulip. Retrieved April 23, 2003, from the World Wide Web: http://www.tulip.dk/english/1_o_page_uk.asp.

United States Department of Agriculture, Agricultural Marketing Service. (2002). National Organic Program. Washington, DC: Author.

United States Department of Commerce, Bureau of Economic Analysis. (2000). Gross State Product: Food and Kindred Products for U.S. Retrieved February 3, 2003 from the World Wide Web: http://www.bea.doc.gov/bea/regional/gsp/.

Weir, M. & Calverley, C. (2002). Market Potential for Organic Foods in Europe. British Food Journal, 104, 45-62.

Weir, M., Hansen, L.G., Andersen, L.M. & Mollock, K. (2002, September). Consumer preferences for organic food. Paper presented at the meeting of the OECD Workshop on Organic Agriculture. Washington, DC.

Weir, M., Hansen, L.G. & Smed, S. (2001, June). Explaining demand for organic food. Paper presented at the 11th annual meeting of the EAERE Conference, Southampton.

United States Department of Agriculture. (2002). Recent Growth Patterns in the U.S. Organic Foods Market. Washington, DC: U.S. Government Printing Office.

Zanoli, R. & Gambelli, D. (1999). Output and Public Expenditure Implications of the Development of Organic Farming in Europe. Stuttgart, Germany: Universität Hohenheim.

Appendix A: Survey Data Collection Form

Date: _____ Time: _____

Store Name: _____

Address: _____

City: _____

Telephone: _____

Product: _____

Brand	Price	Size	PPU	Origin	Organic?	Other Information

Product: _____

Brand	Price	Size	PPU	Origin	Organic?	Other Information

Appendix B: Database Design and Dictionary

Microsoft Access 2002 databases were designed to allow easy data entry and sorting capabilities for the market surveys that we conducted. The market survey database is comprised of four basic data structures: store HQs, stores, visits and products. Each data structure and its data members are defined below:

Store HQ Information	Contains headquarters information for a store or chain of stores. In the event of a single store, most of this information will be redundant from the "Store Information" structure.
Chain Name	The name of the store or company.
HQ Address	The street and number of the chain headquarters or store.
HQ City	The city of the chain headquarters or store.
HQ Code	The four-digit postal code for the headquarters or store.
HQ Telephone	The telephone number for the store.
HQ Website	The URL for the headquarters or store.
ID	Primary key.

Store Information	Contains information about a store that we visit. This structure is necessary to link together two visits to the same store in the unlikely event that we need to revisit a store.
Store Name	The name of the store. This is not necessary the same as the "Chain Name". For example, SuperBrugsen and LocalBrugsen are operated by the same company.
Store Address	The street and number of the store.
Store City	The city of the store.
Store Code	The four-digit postal code for the store.
Store Telephone	The telephone number for the store.
Store Website	The URL for the store.
ID	Primary key.

Visit Information	Contains information about a particular visit to a store. This information, while not used for our analysis is important to gather in case there is a question of bias due to a certain day or time that we visit a store.
Store Name	Link to "Store Information"
Visit Date	Includes the date and day of the week.
Visit Time	The time of our visit.
Erin	Booleans indicating who conducted the visit.
Brian	
Nick	
Visit Comments	Any interesting features or events that we observed during our visit.

Product Information	Contains information about a product from particular visit. (It is possible that in visiting multiple stores from the same chain we may encounter the same product in several stores with the same price. In these cases, there will be multiple entries of that product, each associated with a specific visit and each having a unique primary key.)
ID	Primary key.
Product Name	Brand name.
Product Type	Milk, Bacon, Ketchup, Rice Cakes or Peanut Butter.
Price	In DKK.
Size	The amount of the product (e.g. 400).
Size Units	Grams, Kilograms, Litres, or Millilitres.
Price per Unit	"Price" divided by "Quantity".
Price per Unit Units	DKK/Liter or DKK/Kilogram.
Product Origin	Location determined from packaging.
Organic Grade	'Danish Organic' indicates that the product bears the Ø-Mark 'Organic' indicates a product not bearing the Ø-mark but still labelled as organic. 'Not Organic' indicates all other products.
Comments	Any interesting features of the product.
Visit ID	Used to link to a visit.

Appendix C: Supermarket Survey Data

Visit Information

Store Name	Store Address	Store City	Visit Date	Visit Time	Erin	Brian	Nick
City Helsekost	Vendersgade 6	København K	Friday, April 11, 2003	9:32	No	No	Yes
Fakta	Nørrebrogade 16	Copenhagen N	Friday, April 11, 2003	10:35	No	No	Yes
Fakta	Lyngby St.	Lyngby	Wednesday, March 26, 2003	1:23	Yes	Yes	Yes
Fakta	Jagtvej 75	Copenhagen N	Friday, April 11, 2003	11:21	No	No	Yes
Irma	Osterbrogade 162	København Ø	Friday, March 28, 2003	9:45	Yes	Yes	Yes
Irma	Fredericksborggade 34-36	København K	Friday, April 11, 2003	10:15	No	No	Yes
Irma	Vesterbrogade 1	København V	Tuesday, April 01, 2003	11:55	Yes	Yes	Yes
Irma	Vesterbrogade 46	København V	Tuesday, April 01, 2003	12:24	Yes	Yes	Yes
Irma	Nørre Volgade 78	København K	Friday, April 11, 2003	9:06	No	No	Yes
Irma	Østerbrogade 52	København Ø	Thursday, March 27, 2003	9:00	Yes	Yes	Yes
Irma	Hovedgadat 21	Lyngby	Wednesday, March 26, 2003	2:02	Yes	Yes	Yes
Irma	Oslo Plads 2 , Østerport St.	København Ø	Friday, April 11, 2003	9:15	No	Yes	No
Irma	Lyngby STORcenter 39	Kags. Lyngby	Wednesday, March 26, 2003	13:45	Yes	Yes	Yes
ISO Supermarked	Across from Lyngby St.	Lyngby	Wednesday, March 26, 2003	13:30	Yes	Yes	Yes
ISO Supermarked	Østerfælled Torv 22	København Ø	Friday, March 28, 2003	9:30	Yes	Yes	Yes
Kvickly	Nørrebrogade 157-159	København N	Friday, April 11, 2003	11:42	No	No	Yes
Magasin	Lyngby	Lyngby	Wednesday, March 26, 2003	13:30	Yes	Yes	Yes
Natur og Sundhed	Nørrebrogade 57	København N	Monday, April 14, 2003	16:52	No	No	Yes
Netto	Jagtvej	Copenhagen	Friday, March 28, 2003	9:35	Yes	Yes	Yes
Netto	Nørrebrogade 41	Copenhagen N	Friday, April 11, 2003	10:48	No	No	Yes
Netto	Nørre Voldgade 92	Copenhagen N	Friday, April 11, 2003	9:18	No	No	Yes
Netto	Østerbrogade	Copenhagen	Friday, March 28, 2003	9:50	Yes	Yes	Yes
Netto	Lyngby St.	Lyngby	Wednesday, March 26, 2003	13:00	Yes	Yes	Yes
Øbro Helsekost	Østerbrogade 35	København Ø	Friday, April 11, 2003	11:25	No	Yes	No
Solhatten	Istedgade 85	København V	Tuesday, April 01, 2003	12:43	Yes	Yes	Yes
Solsikke Helsekost	Blågårdsgade 33	København N	Monday, April 14, 2003	16:29	No	No	Yes
Spidsroden	Prins Jøgensgade 14A, kld	København N	Monday, April 14, 2003	16:14	No	No	Yes
SuperBest	Bryggervangen 17	København Ø	Friday, April 11, 2003	10:35	No	Yes	No
SuperBest	Lyngbygårdsvej 155	Kags. Lyngby	Friday, April 11, 2003	13:20	No	Yes	No
SuperBrugsen	Nordre Frihavnsgade 24	København Ø	Thursday, March 27, 2003	9:30	Yes	Yes	Yes
SuperBrugsen	Nørrebrogade 53B	København N	Friday, April 11, 2003	10:56	No	No	Yes
SuperBrugsen	Stengards Alle 38A	Kags. Lyngby	Friday, April 11, 2003	2:20	No	Yes	No
SuperBrugsen	Nørre Volgade 15	København K	Friday, April 11, 2003	9:30	No	No	Yes
SuperBrugsen	Halmtorvet 25	København V	Tuesday, April 01, 2003	1:06	Yes	Yes	Yes
SuperBrugsen	Lyngbygårdsvej 153	Kags. Lyngby	Friday, April 11, 2003	1:40	No	Yes	No

Stores That We Did Not Visit

Store Name	Store Address	Store City	Reason For Not Visiting
Helsemin	Østergade 32, City Arkaden	København K	Lack of Time
Irma	Pilestræde 13	København K	Plenty of Irmas
The Nature Shop	St. Kongensgade 47	København K	Lack of Time
SuperBrugsen	Borgergade 28	København K	Plenty of SuperBrugsens
Grønsager	Baadsmandsstrade 43	København K	Lack of Time
Naturpoteket	Torvegade 36	København K	Lack of Time
McGrail's Naturmagasin	Gl. Torv 6	København K	Does not exist
Irma	Brobergsgade 7	København K	Plenty of Irmas
Prima Supermarked	Mantthæusgade 46	København V	Lack of Time
Irma	Ryesgade 60	København Ø	Plenty of Irmas
LokalBrugsen	Strandboulevardan 94	København Ø	Lack of Time
SuperBrugsen	Østerbrogade 135	København Ø	Plenty of SuperBrugsens
Irma	Sejrøgade 4	København Ø	Plenty of Irmas
Irma	Emdrupvej 22	København Ø	Plenty of Irmas
Favør	Nørrebrogade 43	København N	Does not exist
H.H. Supermarked	Tagensvej 47	København N	Lack of Time
Irma	Rantzausgade11	København N	Plenty of Irmas
Irma	Tagensvej 70	København N	Plenty of Irmas
Kvickly	Nørrebrogade 157-159	København N	Lack of Time
Kongehviles Købmand	Nybrovej 264	Kags. Lyngby	Lack of Time
LokalBrugsen Hjortekær	Bjælkevangen 63	Kags. Lyngby	Lack of Time
Irma	Lyngby Hovedgade 21	Kags. Lyngby	Plenty of Irmas

Product Information

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
149	14	Bacon	Bacon I Skiver	Not Organic	7.95	150	Grams	53	Kilograms	Brøndby
168	15	Bacon	Barfuss	Not Organic	5	120	Grams	41.67	Kilograms	Oer-Erknschnick
140	13	Bacon	Barfuss	Not Organic	5	120	Grams	41.67	Kilograms	Oer-Erknschnick
32	5	Bacon	Dansk Frilands	Not Organic	14.95	125	Grams	119.6	Kilograms	
292	27	Bacon	Dansk Frilands	Not Organic	16.95	125	Grams	135.6	Kilograms	Vejle
133	12	Bacon	Dansk Frilands	Not Organic	14.95	125	Grams	119.6	Kilograms	Rødovre
198	20	Bacon	Dansk Frilands	Not Organic	14.95	125	Grams	119.6	Kilograms	Vejle
99	10	Bacon	Dansk Frilands	Not Organic	14.95	125	Grams	119.6	Kilograms	Rødovre
80	9	Bacon	Dansk Frilands	Not Organic	14.95	125	Grams	119.6	Kilograms	Vejle
76	8	Bacon	Dybbøl	Not Organic	16.95	300	Grams	56.5	Kilograms	
100	10	Bacon	Hanegal	Danish Organic	17.95	100	Grams	179.5	Kilograms	Silkeborg
293	27	Bacon	Hanegal	Danish Organic	17.95	100	Grams	179.5	Kilograms	Silkeborg
199	20	Bacon	Hanegal	Danish Organic	17.95	100	Grams	179.5	Kilograms	Silkeborg
79	9	Bacon	Hanegal	Danish Organic	17.95	100	Grams	179.5	Kilograms	Silkeborg
186	18	Bacon	Hanegal	Danish Organic	16.95	100	Grams	169.5	Kilograms	Silkeborg
347	31	Bacon	Hanegal	Danish Organic	17.95	100	Grams	179.5	Kilograms	Silkeborg
167	15	Bacon	Kend I Veren	Not Organic	7.5	150	Grams	50	Kilograms	Højberg
269	25	Bacon	Kend I Veren	Not Organic	7.5	150	Grams	50	Kilograms	Højberg
141	13	Bacon	Kend I Veren	Not Organic	7.5	150	Grams	50	Kilograms	Højberg
333	30	Bacon	Kend I Veren	Not Organic	7.5	150	Grams	50	Kilograms	Højberg
63	7	Bacon	Kend I Veren	Not Organic	7.5	150	Grams	50	Kilograms	Højberg
436	37	Bacon	Steff Houlberg (for Irma)	Not Organic	24.95	300	Grams	83.17	Kilograms	Ringsted
372	33	Bacon	SuperGros	Not Organic	9.95	150	Grams	66.33	Kilograms	Brøndby

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
404	35	Bacon	SuperGros	Not Organic	11.95	150	Grams	79.67	Kilograms	Brøndby
408	35	Bacon	SuperGros	Not Organic	14.95	300	Grams	49.83	Kilograms	Brøndby
151	14	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
282	26	Bacon	Tulip	Not Organic	16.95	300	Grams	56.5	Kilograms	Randers
373	33	Bacon	Tulip	Not Organic	18.95	150	Grams	126.3	Kilograms	Viby
323	29	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Viby
152	14	Bacon	Tulip	Not Organic	18.95	150	Grams	126.33	Kilograms	Viby
116	11	Bacon	Tulip	Not Organic	8.95	150	Grams	59.66	Kilograms	Viby
353	32	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Viby
355	32	Bacon	Tulip	Not Organic	18.95	150	Grams	126.33	Kilograms	Viby
150	14	Bacon	Tulip	Not Organic	15.95	150	Grams	106.33	Kilograms	Viby
119	11	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Viby
118	11	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
117	11	Bacon	Tulip	Not Organic	18.95	150	Grams	126.33	Kilograms	Viby
243	22	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
222	21	Bacon	Tulip	Not Organic	18.95	150	Grams	126.33	Kilograms	Viby
405	35	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Viby
438	37	Bacon	Tulip	Not Organic	30	450	Grams	66.66	Kilograms	Viby
429	36	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
427	36	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Viby
18	4	Bacon	Tulip	Not Organic	19.95	150	Grams	133	Kilograms	
40	6	Bacon	Tulip	Not Organic	18.95	150	Grams	126.33	Kilograms	Viby
39	6	Bacon	Tulip	Not Organic	15.95	150	Grams	106.33	Kilograms	Viby
244	22	Bacon	Tulip	Not Organic	17.95	150	Grams	119.67	Kilograms	Vejle
248	23	Bacon	Tulip	Not	17.95	150	Grams	119.67	Kilograms	Viby

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
				Organic						
406	35	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
249	23	Bacon	Tulip	Danish Organic	16.95	100	Grams	169.5	Kilograms	Viby
266	24	Bacon	Tulip	Not Organic	16.95	300	Grams	56.5	Kilograms	Randers
407	35	Bacon	Tulip	Not Organic	19.95	150	Grams	133	Kilograms	Viby
36	6	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
221	21	Bacon	Tulip	Danish Organic	17.95	100	Grams	179.5	Kilograms	Viby
223	21	Bacon	Tulip (for FDB)	Not Organic	8.65	150	Grams	57.67	Kilograms	Viby
187	18	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
98	10	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
354	32	Bacon	Tulip (for FDB)	Not Organic	8.65	150	Grams	57.67	Kilograms	Viby
197	20	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
428	36	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
134	12	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Albertslund
348	31	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
437	37	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
291	27	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
250	23	Bacon	Tulip (for FDB)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
349	31	Bacon	Tulip (for Irma)	Not Organic	14.95	125	Grams	119.6	Kilograms	Vejle
31	5	Bacon	Tulip (for Irma)	Not Organic	9.95	150	Grams	66.33	Kilograms	Viby
329	30	Ketchup	Bähncke	Not Organic	10	1000	Grams	10	Kilograms	Skælskør
340	31	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør
440	37	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	skalskør
365	32	Ketchup	Bähncke	Not Organic	16.95	450	Grams	32.67	Kilograms	Skælskør
52	6	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
240	22	Ketchup	Bähncke	Not Organic	15.95	330	Grams	48.33	Kilograms	Skælskør
271	25	Ketchup	Bähncke	Not Organic	10	1000	Grams	10	Kilograms	Skælskør
180	18	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør
422	36	Ketchup	Bähncke	Not Organic	16.95	450	Grams	37.67	Kilograms	Skælskør
215	21	Ketchup	Bähncke	Not Organic	16.95	450	Grams	37.67	Kilograms	Skælskør
13	4	Ketchup	Bähncke	Not Organic	19.95	330	Grams	60.45	Kilograms	
239	22	Ketchup	Bähncke	Not Organic	16.95	450	Grams	37.67	Kilograms	Skælskør
286	27	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør
322	29	Ketchup	Bähncke	Not Organic	16.95	450	Grams	37.67	Kilograms	Skælskør
114	11	Ketchup	Bähncke	Not Organic	17.95	450	Grams	39.89	Kilograms	Skælskør
400	35	Ketchup	Bähncke	Not Organic	16.95	330	Grams	51.36	Kilograms	skalskør
419	36	Ketchup	Bähncke	Not Organic	15.95	330	Grams	48.33	Kilograms	Skælskør
126	12	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør
374	33	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	skalskør
28	5	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	
206	20	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	
251	23	Ketchup	Bähncke	Not Organic	16.95	450	Grams	37.67	Kilograms	Skælskør
87	9	Ketchup	Bähncke	Not Organic	15.95	450	Grams	35.44	Kilograms	Skælskør
252	23	Ketchup	Beauvais	Not Organic	16.95	500	Grams	33.9	Kilograms	Tåstrup
418	36	Ketchup	Beauvais	Not Organic	18.5	500	Grams	37	Kilograms	Tåstrup
327	30	Ketchup	Beauvais	Not Organic	15.75	560	Grams	28.12	Kilograms	Tåstrup
263	24	Ketchup	Beauvais	Not Organic	15.95	560	Grams	28.48	Kilograms	Tåstrup
416	36	Ketchup	Beauvais	Not Organic	25.4	800	Grams	31.75	Kilograms	Tåstrup
288	27	Ketchup	Beauvais	Not Organic	18.95	500	Grams	37.9	Kilograms	Tåstrup
209	20	Ketchup	Beauvais	Not	18.95	500	Grams	37.9	Kilograms	Tåstrup

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
				Organic						
73	8	Ketchup	Beauvais	Not Organic	15.5	560	Grams	27.68	Kilograms	Tåstrup
237	22	Ketchup	Beauvais	Not Organic	24.5	800	Grams	30.63	Kilograms	Tåstrup
238	22	Ketchup	Beauvais	Not Organic	18.4	500	Grams	36.8	Kilograms	Tåstrup
273	25	Ketchup	Beauvais	Not Organic	15.75	560	Grams	28.12	Kilograms	Tåstrup
219	21	Ketchup	Beauvais	Not Organic	24.5	800	Grams	30.63	Kilograms	Tåstrup
220	21	Ketchup	Beauvais	Not Organic	18.4	500	Grams	36.8	Kilograms	Tåstrup
113	11	Ketchup	Beauvais	Not Organic	18.5	500	Grams	37	Kilograms	Tåstrup
279	26	Ketchup	Beauvais	Not Organic	15.95	560	Grams	28.48	Kilograms	Tåstrup
319	29	Ketchup	Beauvais	Not Organic	17.95	500	Grams	35.9	Kilograms	Tåstrup
320	29	Ketchup	Beauvais	Not Organic	24.5	800	Grams	30.63	Kilograms	Tåstrup
270	25	Ketchup	Beauvais	Not Organic	20	900	Grams	22.22	Kilograms	Tåstrup
379	33	Ketchup	Beauvais	Not Organic	17.95	560	Grams	32.05	Kilograms	Tåstrup
64	7	Ketchup	Beauvais	Not Organic	15.75	560	Grams	28.12	Kilograms	Tåstrup
147	14	Ketchup	Beauvais	Not Organic	16.95	500	Grams	33.9	Kilograms	Tåstrup
364	32	Ketchup	Beauvais	Not Organic	17.95	500	Grams	35.9	Kilograms	Tåstrup
363	32	Ketchup	Beauvais	Not Organic	24.5	860	Grams	30.63	Kilograms	Tåstrup
397	35	Ketchup	Beauvais	Not Organic	18.95	500	Grams	37.9	Kilograms	Tåstrup
396	35	Ketchup	Beauvais	Not Organic	24.95	800	Grams	31.18	Kilograms	Tåstrup
398	35	Ketchup	Beauvais	Not Organic	15.55	560	Grams	27.77	Kilograms	Tåstrup
16	4	Ketchup	Beauvais	Not Organic	21.95	550	Grams	38.2	Kilograms	
58	6	Ketchup	Beauvais	Not Organic	16.95	500	Grams	33.9	Kilograms	
380	33	Ketchup	Beauvais	Not Organic	17.95	500	Grams	35.9	Kilograms	Tåstrup
164	15	Ketchup	Beauvais	Not Organic	15.5	560	Grams	27.68	Kilograms	Tåstrup
339	31	Ketchup	Beauvais	Not Organic	18.95	500	Grams	37.9	Kilograms	Tåstrup

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
395	35	Ketchup	Beauvais	Not Organic	28.95	900	Grams	32.17	Kilograms	Tåstrup
148	14	Ketchup	Beauvais	Not Organic	15.95	560	Grams	28.48	Kilograms	Tåstrup
136	13	Ketchup	Beauvais	Not Organic	15.75	560	Grams	28.12	Kilograms	Tåstrup
57	6	Ketchup	Beauvais	Not Organic	15.95	560	Grams	28.48	Kilograms	
27	5	Ketchup	Beauvais	Not Organic	18.95	500	Grams	37.9	Kilograms	
383	33	Ketchup	Beauvais	Not Organic	25.95	800	Grams	32.44	Kilograms	Tåstrup
11	4	Ketchup	Cervera	Not Organic	16.95	330	Grams	51.3	Kilograms	kløvergaard Rødding
55	6	Ketchup	Cervera	Not Organic	18.95	330	Grams	57.42	Kilograms	
144	14	Ketchup	Cervera	Not Organic	18.95	330	Grams	57.42	Kilograms	kløvergaard Rødding
386	33	Ketchup	Graasten Salater	Not Organic	19.95	1000	Grams	19.95	Kilograms	Holmia
394	35	Ketchup	Graasten Salater	Not Organic	16.95	1000	Grams	16.95	Kilograms	Holmia
376	33	Ketchup	Heinz	Organic	18.95	460	Grams	41.19	Kilograms	Portugal
253	23	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
26	5	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	
399	35	Ketchup	Heinz	Organic	19.95	460	Grams	43.36	Kilograms	Portugal
208	20	Ketchup	Heinz	Organic	19.95	460	Grams	43.37	Kilograms	Portugal
135	13	Ketchup	Heinz	Not Organic	19.95	700	Grams	28.5	Kilograms	Holland
56	6	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	
255	23	Ketchup	Heinz	Not Organic	25.95	1000	Grams	25.95	Kilograms	Holland
421	36	Ketchup	Heinz	Organic	20.5	460	Grams	44.57	Kilograms	Portugal
207	20	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
254	23	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	Portugal
378	33	Ketchup	Heinz	Not Organic	18.95	570	Grams	33.24	Kilograms	Holland
262	24	Ketchup	Heinz	Not Organic	16.95	570	Grams	29.73	Kilograms	Holland
393	35	Ketchup	Heinz	Not Organic	15.95	460	Grams	34.67	Kilograms	Holland
392	35	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
125	12	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
382	33	Ketchup	Heinz	Not Organic	29.95	855	Grams	35	Kilograms	Holland
272	25	Ketchup	Heinz	Not Organic	19.95	700	Grams	28.5	Kilograms	Holland
381	33	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
289	27	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
216	21	Ketchup	Heinz	Not Organic	18.4	460	Grams	40	Kilograms	Holland
65	7	Ketchup	Heinz	Not Organic	19.95	700	Grams	28.5	Kilograms	Holland
377	33	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
283	27	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	Portugal
91	10	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
420	36	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
94	10	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland
112	11	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
338	31	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	Portugal
214	21	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
218	21	Ketchup	Heinz	Organic	21.25	460	Grams	46.2	Kilograms	Portugal
182	18	Ketchup	Heinz	Not Organic	19.95	460	Grams	43.37	Kilograms	Holland
233	22	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
24	5	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	
14	4	Ketchup	Heinz	Not Organic	21.95	570	Grams	38.57	Kilograms	
423	36	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
111	11	Ketchup	Heinz	Organic	21.95	460	Grams	46.2	Kilograms	Portugal
362	32	Ketchup	Heinz	Not Organic	25.95	855	Grams	30.95	Kilograms	Holland
50	6	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	
360	32	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
71	8	Ketchup	Heinz	Not Organic	18.95	855	Grams	20.16	Kilograms	Holland
439	37	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
15	4	Ketchup	Heinz	Organic	16.95	460	Grams	49	Kilograms	
51	6	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	
181	18	Ketchup	Heinz	Organic	21.95	460	Grams	47.72	Kilograms	Portugal
326	30	Ketchup	Heinz	Not Organic	19.95	700	Grams	28.5	Kilograms	Holland
165	15	Ketchup	Heinz	Not Organic	19.95	700	Grams	28.5	Kilograms	Holland
443	37	Ketchup	Heinz	Not Organic	13	460	Grams	28.26	Kilograms	Holland
444	37	Ketchup	Heinz	Organic	21.95	460	Grams	47.72	Kilograms	Portugal
336	31	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland
337	31	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
359	32	Ketchup	Heinz	Organic	21.25	460	Grams	46.2	Kilograms	Portugal
142	14	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	Portugal
86	9	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland
146	14	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
85	9	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
234	22	Ketchup	Heinz	Organic	21.25	460	Grams	46.2	Kilograms	Portugal
145	14	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
235	22	Ketchup	Heinz	Not Organic	30.95	1000	Grams	30.95	Kilograms	Holland
290	27	Ketchup	Heinz	Not Organic	29.95	1000	Grams	29.95	Kilograms	Holland
321	29	Ketchup	Heinz	Not Organic	25.95	855	Grams	30.36	Kilograms	Holland
424	36	Ketchup	Heinz	Not Organic	25.95	855	Grams	30.35	Kilograms	Holland
318	29	Ketchup	Heinz	Organic	21.25	460	Grams	46.2	Kilograms	Portugal
23	5	Ketchup	Heinz	Organic	20.95	460	Grams	45.54	Kilograms	
317	29	Ketchup	Heinz	Not Organic	17.95	460	Grams	39.02	Kilograms	Holland
314	28	Ketchup	Helios	Organic	26.5	330	Grams	80.3	Kilograms	Holland
375	33	Ketchup	K	Not Organic	12.5	400	Grams	31.2	Kilograms	
17	4	Ketchup	K	Not Organic	12.95	400	Grams	32	Kilograms	
143	14	Ketchup	Kend I Varen	Not Organic	5.95	500	Grams	11.9	Kilograms	Brøndby
274	25	Ketchup	Kend I Veren	Not Organic	6.95	500	Grams	13.9	Kilograms	Højberg

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
66	7	Ketchup	Kend I Veren	Not Organic	5.25	500	Grams	10.5	Kilograms	Højberg
328	30	Ketchup	Kend I Veren	Not Organic	5.25	500	Grams	10.5	Kilograms	Højberg
166	15	Ketchup	Kend I Veren	Not Organic	5.25	500	Grams	10.5	Kilograms	Højberg
137	13	Ketchup	Kend I Veren	Not Organic	5.25	500	Grams	10.5	Kilograms	Højberg
278	26	Ketchup	Ketchup	Not Organic	11.95	1000	Grams	11.95	Kilograms	Nørre Aaby
264	24	Ketchup	Ketchup	Not Organic	11.95	1000	Grams	11.95	Kilograms	Nørre Aaby
72	8	Ketchup	Ketchup	Not Organic	11.95	1000	Grams	11.95	Kilograms	Vejle
463	39	Ketchup	LaBio Idea	Organic	19.75	300	Grams	65.83	Kilograms	Italy
451	38	Ketchup	LaBio Idea	Organic	20.5	300	Grams	68.33	Kilograms	Italy
417	36	Ketchup	Long Island	Not Organic	23.15	800	Grams	28.94	Kilograms	Albertslund
217	21	Ketchup	Long Island	Not Organic	21.95	800	Grams	27.44	Kilograms	Albertslund
361	32	Ketchup	Long Island	Not Organic	21.95	800	Grams	27.44	Kilograms	Albertslund
236	22	Ketchup	Long Island	Not Organic	21.95	800	Grams	27.44	Kilograms	Albertslund
257	23	Ketchup	Long Island	Not Organic	21.95	800	Grams	27.44	Kilograms	Albertslund
441	37	Ketchup	Mutti	Not Organic	12.95	340	Grams	38.09	Kilograms	Italy
21	5	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
92	10	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
179	18	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
284	27	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
88	9	Ketchup	Mutti	Not Organic	11.95	540	Grams	35.15	Kilograms	Italy
334	31	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
203	20	Ketchup	Mutti	Not Organic	11.95	310	Grams	35.15	Kilograms	Italy
127	12	Ketchup	Mutti	Not Organic	11.95	340	Grams	35.15	Kilograms	Italy
461	39	Ketchup	Rømer	Danish Organic	20	330	Grams	60.6	Kilograms	Silkeborg
256	23	Ketchup	Tomat Ketchup	Not Organic	12.95	1000	Grams	12.95	Kilograms	

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
341	31	Ketchup	Tomat Ketchup	Not Organic	13.95	1000	Grams	13.95	Kilograms	
59	6	Ketchup	Tomat Ketchup	Not Organic	5.95	500	Grams	11.91	Kilograms	
115	11	Ketchup	Tomat Ketchup	Not Organic	11.95	1000	Grams	11.95	Kilograms	
287	27	Ketchup	Tomat Ketchup	Not Organic	13.95	1000	Grams	13.95	Kilograms	
25	5	Ketchup	Tomat Ketchup	Not Organic	13.95	1000	Grams	13.95	Kilograms	
84	9	Ketchup	Tomat Ketchup	Not Organic	13.95	1000	Grams	13.95	Kilograms	
205	20	Ketchup	Tomat Ketchup	Not Organic	13.95	1000	Grams	13.95	Kilograms	
480	40	Ketchup	Urtekram	Organic	21.5	330	Grams	65.15	Kilograms	Mariager
109	11	Ketchup	Urtekram	Organic	19.95	500	Grams	39.9	Kilograms	Mariager
110	11	Ketchup	Urtekram	Organic	21.95	330	Grams	73.17	Kilograms	Mariager
285	27	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
442	37	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
12	4	Ketchup	Urtekram	Organic	23.95	330	Grams	72.58	Kilograms	Danval Frankrig
10	4	Ketchup	Urtekram	Organic	21.95	500	Grams	43.91	Kilograms	Beredningisland
313	28	Ketchup	Urtekram	Organic	19.95	680	Grams	28.5	Kilograms	Mariager
93	10	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
450	38	Ketchup	Urtekram	Organic	26.75	330	Grams	81.06	Kilograms	Mariager
460	39	Ketchup	Urtekram	Organic	21.5	330	Grams	65.15	Kilograms	Mariager
481	40	Ketchup	Urtekram	Organic	19.95	500	Grams	39.9	Kilograms	Mariager
452	38	Ketchup	Urtekram	Organic	19.75	500	Grams	39.5	Kilograms	Mariager
195	19	Ketchup	Urtekram	Organic	25	330	Grams	75.75	Kilograms	Mariager
335	31	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
204	20	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
22	5	Ketchup	Urtekram	Organic	22.95	500	Grams	45.9	Kilograms	Mariager
482	40	Ketchup	Zwergenwiese	Organic	21.5	340	Grams	63.23	Kilograms	Germany
435	37	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
67	7	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
74	8	Milk	Arla	Not Organic	6	1	Litres	6	Litres	Viby
185	18	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
153	14	Milk	Arla	Not Organic	6.15	1	Litres	6.15	Litres	Viby
129	12	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
169	15	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
82	9	Milk	Arla	Not	6.5	1	Litres	6.5	Litres	Viby

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
				Organic						
425	36	Milk	Arla	Not Organic	6.55	1	Litres	6.55	Litres	Viby
95	10	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
492	21	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
30	5	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
200	20	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
138	13	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
120	11	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
295	27	Milk	Arla	Not Organic	6.95	1	Litres	6.95	Litres	Viby
403	35	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
315	29	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
280	26	Milk	Arla	Not Organic	6.1	1	Litres	6.1	Litres	Viby
276	25	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
268	24	Milk	Arla	Not Organic	6.1	1	Litres	6.1	Litres	Viby
385	33	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
330	30	Milk	Arla	Not Organic	5.95	1	Litres	5.95	Litres	Viby
260	23	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
351	32	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
241	22	Milk	Arla	Not Organic	6.45	1	Litres	6.45	Litres	Viby
345	31	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
41	6	Milk	Arla	Not Organic	6.5	1	Litres	6.5	Litres	Viby
20	4	Milk	Grambo Gård	Not Organic	9.25	1	Litres	9.25	Litres	
19	4	Milk	Harmonie	Danish Organic	13.9	1	Litres	~~13.9~~[17]	Litres	Viby

[17] This price seemed anomalous and was rechecked during the writing of the report. Upon further investigation, it was determined that this was the price of a 1 liter bottle of yogurt adjacent to the milk. The price has been removed from any calculations in this report, but the brand was still counted for other graphs.

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
275	25	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
259	23	Milk	Harmonie	Danish Organic	7.6	1	Litres	7.6	Kilograms	Viby
281	26	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
267	24	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
139	13	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
491	21	Milk	Harmonie	Danish Organic	7.6	1	Litres	7.6	Litres	Viby
331	30	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.96	Litres	Viby
170	15	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
121	11	Milk	Harmonie	Danish Organic	7.6	1	Litres	7.6	Litres	Viby
402	35	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
68	7	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
242	22	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
75	8	Milk	Harmonie	Danish Organic	6.95	1	Litres	6.95	Litres	Viby
316	29	Milk	Harmonie	Danish Organic	7.6	1	Litres	7.6	Litres	Viby
384	33	Milk	Harmonie	Danish Organic	7	1	Litres	7	Litres	Viby
352	32	Milk	Harmonie	Danish Organic	7.6	1	Litres	7.6	Litres	Viby
43	6	Milk	ISO	Danish Organic	8.95	1	Litres	8.95	Litres	København
426	36	Milk	Naturmælk	Danish Organic	7.95	1	Litres	7.95	Litres	Tinglev
258	23	Milk	Økomælk	Danish Organic	7.75	1	Litres	7.75	Kilograms	Vejen
401	35	Milk	Økomælk	Danish Organic	7.5	1	Litres	7.5	Litres	Vejen
196	19	Milk	Øllingegaard	Danish Organic	5	1	Litres	5	Litres	Skævinge
154	14	Milk	Øllingegaard	Danish Organic	7.25	1	Litres	7.25	Litres	Skævinge
467	39	Milk	Øllingegaard	Danish Organic	9	1	Litres	9	Litres	Skævinge
42	6	Milk	Øllingegaard	Danish Organic	7.25	1	Litres	7.25	Litres	Skævinge
387	34	Milk	Thise	Danish	9.95	1	Litres	9.95	Litres	Roslev

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
				Organic						
468	39	Milk	Thise	Danish Organic	7.75	1	Litres	7.75	Litres	Rødovre
344	31	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
29	5	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
201	20	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
434	37	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
183	18	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
96	10	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
128	12	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
297	27	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Rødovre
83	9	Milk	Thise (for Irma)	Danish Organic	7.6	1	Litres	7.6	Litres	Roslev
229	22	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
228	22	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
103	11	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
225	21	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
224	21	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
60	6	Peanut Butter	Green Choice	Organic	24.95	340	Grams	73.38	Kilograms	Holland
261	23	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
161	14	Peanut Butter	Green Choice	Organic	24.95	340	Grams	73.38	Kilograms	Holland
367	32	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
366	32	Peanut Butter	Green Choice	Organic	25.95	340	Grams	76.32	Kilograms	Holland
431	36	Peanut Butter	Green Choice	Organic	24.95	340	Grams	73.38	Kilograms	Holland
430	36	Peanut Butter	Green Choice	Organic	24.95	340	Grams	73.38	Kilograms	Holland
5	4	Peanut Butter	La Comtesse	Not Organic	24.95	350	Grams	71.2	Kilograms	
6	4	Peanut Butter	La Comtesse	Not Organic	24.95	350	Grams	71.2	Kilograms	

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
62	6	Peanut Butter	Nutz	Not Organic	14.95	340	Grams	43.97	Kilograms	England
162	14	Peanut Butter	Nutz	Not Organic	14.95	340	Grams	43.97	Kilograms	Vejle
163	14	Peanut Butter	Nutz	Not Organic	14.95	340	Grams	43.97	Kilograms	Vejle
61	6	Peanut Butter	Nutz	Not Organic	14.95	340	Grams	43.97	Kilograms	England
415	35	Peanut Butter	Nutz	Not Organic	14.95	340	Grams	43.97	Kilograms	England
471	39	Peanut Butter	Rømer	Danish Organic	24.75	350	Grams	70.71	Kilograms	Silkeborg
479	40	Peanut Butter	Rømer	Danish Organic	21.75	200	Grams	108.75	Kilograms	Silkeborg
391	34	Peanut Butter	Rømer	Danish Organic	36.75	500	Grams	73.5	Kilograms	Silkeborg
472	39	Peanut Butter	Rømer	Danish Organic	36.75	600	Grams	61.25	Kilograms	Silkeborg
473	39	Peanut Butter	Rømer	Danish Organic	21.75	200	Grams	108.75	Kilograms	Silkeborg
478	40	Peanut Butter	Rømer	Danish Organic	24.75	350	Grams	70.71	Kilograms	Silkeborg
477	40	Peanut Butter	Rømer	Danish Organic	36.75	600	Grams	61.25	Kilograms	Silkeborg
475	40	Peanut Butter	Urtekram	Danish Organic	29.75	350	Grams	85	Kilograms	Mariager
77	9	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
455	38	Peanut Butter	Urtekram	Danish Organic	58.75	700	Grams	83.92	Kilograms	Mariager
101	11	Peanut Butter	Urtekram	Danish Organic	29.95	350	Grams	85.57	Kilograms	Mariager
102	11	Peanut Butter	Urtekram	Danish Organic	29.95	350	Grams	85.57	Kilograms	Mariager
132	12	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
448	37	Peanut Butter	Urtekram	Danish Organic	27.95	350	Grams	79.86	Kilograms	Mariager
213	20	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
449	37	Peanut Butter	Urtekram	Danish Organic	27.95	350	Grams	79.86	Kilograms	Mariager
78	9	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
343	31	Peanut Butter	Urtekram	Organic	26.95	350	Grams	77	Kilograms	Mariager
342	31	Peanut Butter	Urtekram	Organic	26.95	350	Grams	77	Kilograms	Mariager
476	40	Peanut	Urtekram	Danish	54.75	700	Grams	78.21	Kilograms	Mariager

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
		Butter		Organic						
174	18	Peanut Butter	Urtekram	Danish Organic	24.95	350	Grams	71.29	Kilograms	Mariager
173	18	Peanut Butter	Urtekram	Danish Organic	24.95	350	Grams	71.29	Kilograms	Mariager
453	38	Peanut Butter	Urtekram	Danish Organic	31.75	350	Grams	90.71	Kilograms	Mariager
454	38	Peanut Butter	Urtekram	Danish Organic	31.75	350	Grams	90.71	Kilograms	Mariager
188	19	Peanut Butter	Urtekram	Danish Organic	32.75	350	Grams	93.57	Kilograms	Mariager
300	28	Peanut Butter	Urtekram	Danish Organic	57.95	700	Grams	82.79	Kilograms	Mariager
302	28	Peanut Butter	Urtekram	Danish Organic	31.95	350	Grams	91.29	Kilograms	Mariager
298	27	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
131	12	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
299	27	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
89	10	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
470	39	Peanut Butter	Urtekram	Danish Organic	29.75	350	Grams	85	Kilograms	Mariager
474	40	Peanut Butter	Urtekram	Danish Organic	32.75	350	Grams	93.57	Kilograms	Mariager
469	39	Peanut Butter	Urtekram	Danish Organic	54.75	700	Grams	78.21	Kilograms	Mariager
388	34	Peanut Butter	Urtekram	Danish Organic	54.75	700	Grams	78.21	Kilograms	Mariager
189	19	Peanut Butter	Urtekram	Danish Organic	29.75	350	Grams	85	Kilograms	Mariager
34	5	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
212	20	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
33	5	Peanut Butter	Urtekram	Danish Organic	26.95	350	Grams	77	Kilograms	Mariager
390	34	Peanut Butter	Urtekram	Danish Organic	32.75	350	Grams	93.57	Kilograms	Mariager
301	28	Peanut Butter	Urtekram	Danish Organic	31.95	350	Grams	91.29	Kilograms	Mariager
409	35	Rice Cakes	Brink	Not Organic	6.95	100	Grams	69.5	Kilograms	Holland
7	4	Rice Cakes	Brink	Not Organic	10.95	100	Grams	109	Kilograms	Brødo Lund-Hansen
70	8	Rice Cakes	Brink	Not Organic	6.95	100	Grams	69.5	Kilograms	Holland

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
265	24	Rice Cakes	Brink	Not Organic	6.95	100	Grams	69.5	Kilograms	Holland
312	28	Rice Cakes	Ekoland	Organic	11.95	100	Grams	119.5	Kilograms	Netherlands
47	6	Rice Cakes	Green Valley	Organic	9.95	100	Grams	99.5	Kilograms	Hadsten
159	14	Rice Cakes	Green Valley	Danish Organic	9.95	100	Grams	99.5	Kilograms	Hadsten
160	14	Rice Cakes	Green Valley	Danish Organic	9.95	100	Grams	99.5	Kilograms	Hadsten
371	33	Rice Cakes	Green Valley	Danish Organic	9.95	100	Grams	99.5	Kilograms	Hadsten
410	35	Rice Cakes	Green Valley	Danish Organic	9.95	100	Grams	99.5	Kilograms	Hadsten
194	19	Rice Cakes	Hildegard	Not Organic	14.75	100	Grams	147.5	Kilograms	Silkeborg
466	39	Rice Cakes	Lima	Organic	11.25	100	Grams	112.5	Kilograms	France
311	28	Rice Cakes	Lima	Organic	11.95	100	Grams	119.5	Kilograms	France
459	38	Rice Cakes	Probios	Organic	13.25	100	Grams	132.5	Kilograms	Italy
411	35	Rice Cakes	Quaker	Not Organic	15	145	Grams	107.14	Kilograms	England
490	40	Rice Cakes	Rømer	Organic	14.75	100	Grams	147.5	Kilograms	Silkeborg
49	6	Rice Cakes	Urtekram	Organic	12.95	100	Grams	99.83	Kilograms	Mariager
48	6	Rice Cakes	Urtekram	Not Organic	12.95	100	Grams	99.83	Kilograms	Mariager
483	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
484	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
485	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
486	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
487	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
46	6	Rice Cakes	Urtekram	Organic	12.95	100	Grams	99.83	Kilograms	Mariager
488	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
489	40	Rice Cakes	Urtekram	Danish Organic	10.95	100	Grams	109.5	Kilograms	Mariager
44	6	Rice Cakes	Urtekram	Organic	12.95	100	Grams	99.83	Kilograms	Mariager
155	14	Rice	Urtekram	Danish	12.95	100	Grams	99.83	Kilograms	Mariager

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
		Cakes		Organic						
45	6	Rice Cakes	Urtekram	Organic	12.95	100	Grams	99.83	Kilograms	Mariager
192	19	Rice Cakes	Urtekram	Danish Organic	12.75	100	Grams	127.5	Kilograms	Mariager
304	28	Rice Cakes	Urtekram	Danish Organic	11.95	100	Grams	119.5	Kilograms	Mariager
305	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
306	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
105	11	Rice Cakes	Urtekram	Danish Organic	14.95	100	Grams	149.5	Kilograms	Mariager
307	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
308	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
309	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
310	28	Rice Cakes	Urtekram	Danish Organic	13.95	100	Grams	139.5	Kilograms	Mariager
190	19	Rice Cakes	Urtekram	Danish Organic	12.75	100	Grams	127.5	Kilograms	Mariager
104	11	Rice Cakes	Urtekram	Danish Organic	14.95	100	Grams	149.5	Kilograms	Mariager
191	19	Rice Cakes	Urtekram	Danish Organic	12.75	100	Grams	127.5	Kilograms	Mariager
106	11	Rice Cakes	Urtekram	Danish Organic	14.95	100	Grams	149.5	Kilograms	Mariager
156	14	Rice Cakes	Urtekram	Danish Organic	12.95	100	Grams	99.83	Kilograms	Mariager
108	11	Rice Cakes	Urtekram	Danish Organic	14.95	100	Grams	149.5	Kilograms	Mariager
465	39	Rice Cakes	Urtekram	Danish Organic	11	100	Grams	110	Kilograms	Mariager
157	14	Rice Cakes	Urtekram	Danish Organic	12.95	100	Grams	99.83	Kilograms	Mariager
158	14	Rice Cakes	Urtekram	Danish Organic	12.95	100	Grams	99.83	Kilograms	Mariager
458	38	Rice Cakes	Urtekram	Danish Organic	13.5	100	Grams	135	Kilograms	Mariager
457	38	Rice Cakes	Urtekram	Danish Organic	13.5	100	Grams	135	Kilograms	Mariager
107	11	Rice Cakes	Urtekram	Danish Organic	14.95	100	Grams	149.5	Kilograms	Mariager
464	39	Rice Cakes	Urtekram	Danish Organic	11	100	Grams	110	Kilograms	Mariager
303	28	Rice Cakes	Urtekram	Danish Organic	11.95	100	Grams	119.5	Kilograms	Mariager

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
294	27	Rice Cakes	Urtekram	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
193	19	Rice Cakes	Urtekram	Danish Organic	12.75	100	Grams	127.5	Kilograms	Mariager
456	38	Rice Cakes	Urtekram	Danish Organic	13.5	100	Grams	135	Kilograms	Mariager
447	37	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
446	37	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
445	37	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
35	5	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
211	20	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
123	12	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
210	20	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
122	12	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
350	31	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
124	12	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
90	10	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
81	9	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
175	18	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
177	18	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
178	18	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
176	18	Rice Cakes	Urtekram (for Irma)	Danish Organic	9.95	100	Grams	99.5	Kilograms	Mariager
356	32	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
245	23	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
432	36	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
433	36	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
246	23	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
357	32	Rice	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland

Product Information										
ID	Visit ID	Product Type	Brand	Organic Grade	Price	Size	Size Units	Price Per Unit	Price Per Unit Units	Product Origin
		Cakes								
412	35	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
171	15	Rice Cakes	Wasa	Organic	8.95	100	Grams	89.5	Kilograms	Holland
9	4	Rice Cakes	Wasa	Organic	12.95	100	Grams	129.5	Kilograms	Holland
8	4	Rice Cakes	Wasa	Organic	10.95	100	Grams	109	Kilograms	Holland
332	30	Rice Cakes	Wasa	Not Organic	8.95	100	Grams	89.5	Kilograms	Holland
358	32	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
247	23	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
413	35	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
277	25	Rice Cakes	Wasa	Organic	8.95	100	Grams	89.5	Kilograms	Holland
368	33	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
226	21	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
227	21	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
230	22	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
325	29	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
324	29	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
69	7	Rice Cakes	Wasa	Organic	8.95	100	Grams	89.5	Kilograms	Holland
231	22	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
232	22	Rice Cakes	Wasa	Organic	9.95	100	Grams	99.5	Kilograms	Holland
369	33	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
370	33	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland
414	35	Rice Cakes	Wasa	Organic	10.95	100	Grams	109.5	Kilograms	Holland

Appendix D: Standardized Interview Plans

Interview Plan for Academics

Background:

What are your research areas?

How long have you been researching organic foods?

What particular areas of organic food are your focuses?

History:

How have organic foods grown since their advent in Denmark?

How have government subsidies worked to grow and sustain the industry?

Is their still political support for them today?

Are subsidies spread evenly or are they concentrated on particular types of industries or companies?

How has government regulation affected the organic food industry?

Are their currently pressures to tighten, loosen or otherwise modify regulations?

Have any aspects or organic foods (regulations, subsidies, etc.) shifted to the European Union?

Do you anticipate any shifts in the future?

Have there been trends toward consolidation in the Danish or European food systems, particularly with respect to organic foods?

How have these affected the markets?

What barriers exist for small businesses attempting to enter the food market?

Current Situation:

What are consumer attitudes towards organic food?

What future market growth do you anticipate?

Are there any sectors that you see as particularly promising?

Interview Plan for Dairies

Production Questions:
How long have you been an organic producer?

How long have you been certified?

What is the size of your dairy?

What products are in your product line?

What category of products do you produce (100% organic, 95% organic, etc)?

What are you animal welfare practices?

What type of food are the animals fed, is it 100% organic?

Marketing Questions:
Where do you market your products?

Why did you choose those markets?

Is there a large demand?

How profitable is the market?

Consolidation and Competition Questions:
Have you seen a trend towards consolidation in the organic food industry?

If so, how has this affected you?

What is your competitive relationship with other dairies, both large and small?

What social or ethical responsibilities do you have as an organic producer?

Do those considerations play a role in what you produce and how?

What are your views on other organic producers, large or small?

What are the biggest challenges facing organic farmers?

What growth do you see in the organic food sector?

Interview Plan for Bacon Producers

Production Questions:
How long have you been an organic producer?

How long have you been certified?

What is the size of your farm/production facility?

What do you produce?

What category of products do you produce (100% organic, 95% organic, etc)?

What is your animal welfare policy?

How are your animals slaughtered?

Marketing Questions:
Where do you market your products?

Why did you choose those markets?

Is there a large demand?

How profitable is the market?

Consolidation and Competition Questions:
Have you seen a trend towards consolidation in the organic food industry?

If so, how has this affected you?

What social or ethical responsibilities do you have as an organic producer?

Do those considerations play a role in what you produce and how?

What are your views on other organic producers, large or small?

What are the biggest challenges facing organic farmers?

What growth do you see in the organic food sector?

Interview Plan for Supermarkets

Background:

What is the history of your company?

Have there been any recent mergers or acquisitions?

What market do you serve (geographical region, population)?

How many stores do you operate?

What were your annual revenues for last year?

Organic Products:

Does your company stock organic products?

When did your company begin stocking organic products?

What was your company's motivation in doing this?

What products do you carry today? How many? What types?

What products have the highest demand?

Are customers satisfied with the choice of organic products?

What portion of sales do organic products account for?

Do you find that organic products are more or less profitable than conventional products?

Challenges of Organic Products:

What do you see as the biggest challenge facing organic food retailers?

Is there an adequate supply of organic products?

Where do you purchase your organic products from (wholesale distributor, small farmer)?

What are your motivations in choosing an organic food supplier?

What are the advantages/disadvantages of different types of suppliers?

Ethical Considerations:

Do you consider the ethical or social responsibility of the producers you stock?

What role do the ethical and social considerations play in selecting products?

The Future:

What role do you see for organic products in your company's long range plans?

What direction do you see the retail food industry in Denmark moving in?

What future growth do you anticipate in the organic food sector?

Appendix E: Interview Summaries for Actors and Experts in United States Organic Food Market

Dan Lawton of Rhode Island Department of Environmental Management

Dan Lawton of the Rhode Island Department of Environmental Management (RI-DEM) was interviewed via telephone, by Erin Bliven, Brian Landry and Nick Seifert on Wednesday, February 5th at 2:00 pm.

The interview began with us asking Dan about DEM's role in organic food production. DEM is a United States Department of Agriculture (USDA) accredited certifying agent. They first became involved with certifying organic farms in 1990. Prior to that time, the Rhode Island chapter of the Northeast Organic Farming Association (NOFA) was conducting inspections and certifications. Once the organic food production act was passed by congress in 1990, the chief of DEM initiated involvement in certification. DEM is authorized to certify farms for Rhode Island and for the United States.

Rhode Island does not have their own organic program; they are implementing the National Organic Program (NOP). Rhode Island does have their own regulations, but they follow the national regulations. The Rhode Island regulations could be stricter than the national regulations, but DEM would have to justify the stricter regulations to the USDA before they could be implemented.

DEM conducts the certification process, which consists of the following: a one-page application; an organic plan for the farm, which is typically 14-15 pages long and documents the practices and inputs to be used on the farm; and marketing plan. The paperwork is reviewed and an inspection is conducted to assure validity of the paperwork. After the inspection, an inspection report is created and reviewed by DEM. If all the paperwork and inspections are found to be compliant with the regulations, the farm is certified.

In assuring that there is no cross-contamination from nearby farms, DEM requires that organic farms have a buffer zone based on the individual farm and its situation. The zones vary depending on the chemicals being used nearby and other situational factors. In the past, a 50-60 foot buffer zone of a hedgerow and a 30-foot buffer zone have been required.

Most of the organic farms control weeds through flame weeding, growing clover between rows of crops, crop rotation or resistant plants. Some farmers allow the weeds to grow, reducing the yield of product, and also reducing the product lost to consumption by deer. Greenhouses commonly use pest predators such as ladybugs and mice. New regulations have cut down the chemicals that can be used, so that they are more expensive and are biological substances.

If a farm is found to be non-compliant (as detailed in the NOP), DEM will do the initial investigation, but the USDA would do further testing. To check for prohibited substances, historically, soil testing has been conducted, as allowed by the NOP. This work is done by pesticide inspectors who take samples from farms and report the results to DEM. DEM is authorized to issue a notice of non-compliance or violation and revoke certification for the state of Rhode Island. Only the USDA is authorized to revoke a national certification.

To help farmers with the certification process and transitioning to organic farming, there have been meeting with NOFA to explain the NOP to the farmers and allow the farmers to voice their concerns. Financially, the certification does not cost anything to the farmer. The Rhode Island government sees organic farming as a way to conserve open space. However, if the state of Rhode Island was to charge the farmers, USDA would assist with the cost.

In 1990, there were 19 farms, one apple farm and the rest vegetable and herb farms, with an average size of 1.5 acres per farm, in Rhode Island. In 2001 there were 39 farms, with the average size of 5.5 acres per farm. Yet not all these farms are organic. As time passed, some of the farms stopped producing and some applied for certification. There are currently eight certified organic farms in Rhode Island, and Dan had eighteen applications waiting for review. He sees the market as growing. The farmers' opinion is that once the market has been established they can sell as much as they can grow, since there is a large enough demand. The overall growth trend is towards large-scale commercial farms, rather than smaller "backyard" farms.

The farmers typically produce fruits and vegetables. A select few farms produce medicinal herbs and sod. There is some interest in organic livestock production, yet currently there is not a certification policy for livestock. Dan did not know if there were any USDA certified organic slaughterhouses in Rhode Island. Yet he believes that there may be a provision for poultry farmers so that they can process a certain number of the chickens at the farm.

The organic products are usually marketed to the Whole Foods retail chain, East Side Marketplace, direct marketing through community supported agriculture, farmers markets or roadside stands, and through restaurants. Marketing to restaurants has proven to be very profitable in that they buy just below the retail price.

Jonathon von Ranson of Northeast Organic Farming Association in Massachusetts (NOFA-MA)

Jonathon von Ranson of the Northeast Organic Food Association (NOFA) was interviewed on February 7, 2003 at 10:00 AM, by Erin Bliven and Brian Landry.

The interview began with Jonathon von Ranson giving us NOFA's mission statement, which we later found on the website: "NOFA/MA is a community including farmers, gardeners, landscapers and consumers working to educate members and the general public about the benefits of local organic systems based on complete cycles, natural materials, and minimal waste for the health of individual beings, communities and the living planet" (NOFA, 2003). NOFA's main role in organic farming is that of education, both of farmers and of consumers. Jonathon is the president of the board that sets policy. Previous successes of NOFA include being a key player in the genetically modified organisms (GMO) debate. Through educating people about GMO's, NOFA has gotten resolutions against GMO's introduced in Massachusetts's towns. NOFA was unable to have any legislation introduced because state legislature is heavily lobbied.

Jonathon viewed a shift to all production being done by small farms as a solution to the over use of energy, food scares and health problems that are attributed to production in industry. He also expressed concern that food related heath issues, such as allergies and cancer, may be caused by toxins in improperly grown or processed foods. Larger companies are driven by profit and will use any cheap method to produce the food, at any cost to the health of the consumers. Smaller, organic farms are better for the economy because they promote the local economy, and are healthier to the person because they lack all the pesticides and toxins found in conventionally produced foods. Also, in industrial agriculture, there is little responsibility from the leaders of the company if a product makes people sick. With small farms, consumers know who they are buying from, and if there is an issue with the food, they can contact them.

As for large producers entering the organic market, Jonathon believes that they are driven purely by profit, and not by wanting to create sustainable agriculture or uphold a social responsibility. These companies still overuse energy because they transport their products to many places, which is not efficient. The farmers for these companies tend to press the

boundaries of what substances can be used for pest and weed management, whereas small farms use more traditional organic pest management strategies. The large producers do not stimulate the local economy as the small, local farmers do. Lastly, there could be a loss of diversity of products if a shift to only large producers is made. Essentially, these producers will be dictating to the consumers what organic products they can purchase. Yet, if the focus is on small, organic farms, there will be great diversity because each farm will produce what it grows best.

The quality of the product when produced through a large organic producer also decreases, yet not in normally measured amounts of quality. There may not be more pesticide use in the product produced at a large farm, but there will be less of a social quality to the product. Jonathon described small organic farmers and the people who buy their product as "community glue", when a large producers enters the market, this glue is gone, and the community suffers. Jonathon is worried about how the National Organic Programs' definition of "organic" may change when larger producers want to enter the organic market, in that "organic" products may no longer uphold social responsibilities and promote sustainable agriculture.

NOFA provides aid to organic farmers both in the forms of education and financial assistance. Manuals are currently being created to help farmers. Also, consumers who want to have a strong connection to the land are helped in their hunt for better food produced in a sustainable manner. NOFA also provides free advice for farmers, but if they would like a longer consultation, there is a fee. As for financial assistance, most established farms do not need any help. Yet transitioning farms or farms seeking certification can apply for a scholarship to aid in their expenses. NOFA also helps the farmers find outlets to market their products in Massachusetts's stores. Currently, most organic farmers are marketing their products through farmers' markets, community supported agriculture, farm stands, wholesale through Whole Foods, Greenfield's Market or The Living Earth.

The growth that Jonathon has seen has been largely in awareness, with local organic farming becoming increasingly important. In the future, he hopes that the organic market will increase at a respectable rate, about 10% per annum. If the industry grows too fast that will only promote the establishment of large, profit driven organic producers. He hopes that consumers will realize that organic foods are part of a larger picture, with social and economic aspects. He also hopes that consumers will understand that local, efficient growth is the best way to achieve sustainable agriculture and that consumers will recognize that in order to purchase quality organic food, they are going to have to pay more for it. Julie Rawson of the Northeast Organic Farming Association in Massachusetts (NOFA-MA)

Julie Rawson, Executive Coordinator of the Northeast Organic Farming Association in Massachusetts (NOFA-MA), Treasurer of the NOFA Interstate Council, and owner/operator of a certified organic farm was interviewed via telephone on Monday, February 10, 2003 at 10:00 AM by Erin Bliven, Brian Landry and Nick Seifert.

The overall mission of NOFA is to educate consumers, farmers, gardeners, landscapers, homesteaders and environmentalists about organic farming. Also NOFA helps to educate people to reevaluate their way of life to take more responsibility for the food they are consuming and from where it is coming. Its members consist of farmers, consumers and "anyone who eats." NOFA works very hard to keep all its members happy.

NOFA has been active in Massachusetts since 1982. In that time, the successes that NOFA has had are not usually quantifiable through standard methods. One quantifiable success that NOFA has had is stopping MWRA from marketing sludge fertilizer as organic. NOFA also enabled organic farms on Cape Cod to be spared the toxic effects of mosquito spraying by having the spraying turned off over the farms.

Since 1982, there has been much growth in the organic market in Massachusetts. When NOFA was first organized, there were no certified organic farms. Certification of farms began in 1986. Now there are one hundred certified organic farms. Interest in organic production has also grown tremendously since 1982. In the 1970s, mainly "hippies" were interested in organic foods. Now organic food is a mainstream product.

The organic movement was widespread throughout the Northeast and West in the 1970s. In the 1980s, in California, large, industrial agricultural operations began producing organic foods. Interest in organic production was sparked in 1989 with the Alar scare. Alar is a synthetic substance used to color apples red. A study reported that the substance was toxic, and interest in organics increased. Many large producers are in California and Colorado, and when they are involved in organic production even the largest organic producers in the Northeast are unable to compete and end up out of business.

A large producer affects the market by causing prices to decrease. Also, small farms may be out-competed, and will go bankrupt or have to find a new niche for their products. The larger producers tend to sell their product wholesale though supermarkets, whereas small farmers are successful marketing their products through community supported agriculture and selling to local retail markets. However, Julie viewed conventional producers, such as Dole having an organic subset as a beneficial situation because it causes more organic production and helps protect the environment. Even though she supports organic production on either a large of small scale, Julie thinks that quality of the product decreases when a large producer is making the product. Small farmers have more control over the final product and can easier assure its quality. If possible, Julie would like to see all consumers buying local organic products.

Farmers in Massachusetts market their products through wholesale to Whole Foods or Stop & Shop, restaurants and institutions, community supported agriculture farmers markets and mail order. The profitability of any of these marketing avenues depends on the scale of the producer.

NOFA helps farmers financial by offering farmers seeking certification a $1,000.00 scholarship. NOFA helps the farms save money by buying organic fertilizers in bulk and selling them to farmers for cheaper than retail. There are also government subsidies that guarantee a 75% rebate of certification costs up to $500.00. NOFA also has $1,000.00 to divide up between all farmers that ask for assistance. In terms of advice, NOFA helps farmers apply for SARE grants, which can help the farmers financially. NOFA also educates farmers through conferences. These programs are successful, but NOFA is a self-help organization, if a farmer is actively seeking help, he will be able to find it.

Julie believes that organic farmers need more help than they are receiving. The most important thing farmers need is a decent price at which they can sell their products. Farming is not a financially sustainable way to live. The farmers that are successful not only produce good products, but are also excellent marketers and planners. In order for farmers to be successful, consumers need to reevaluate the worth of food and consider paying more for quality products.

In future years, Julie hopes to have the food market be 100% organic. She thinks that if everyone raised their own food, the world would be a happier place. She wishes that there be more small farms and community agriculture.

Don Franczyk of Massachusetts Independent Certification, Inc.

Don Franczyk of Massachusetts Independent Certification, Inc. was interviewed via telephone on Monday, February 10, 2003 at 11:00 AM by Erin Bliven and Nick Seifert.

Massachusetts Independent Certification Inc. (MIC) is an offshoot of the Northeast Organic Farming Association in Massachusetts (NOFA-MA). NOFA asks MIC organic

certification regulations for its members, and MIC refers farmers seeking certification to NOFA-MA for advice. MIC is not allowed to make any recommendations or advise farmers seeking certification, because it is a conflict of interest.

MIC does not offer any financial aid to farmers seeking certification. However, NOFA-MA offers a scholarship to aid farmers in certification costs. Also, as dictated in the Farm Bill, the government will refund farmers 75% of their certification costs, up to $500.00.

Massachusetts never has and currently does not have its own organic regulations other than the national regulations. Connecticut does have their own organic regulations and they are similar to the Californian regulations. There is not a state in New England that has regulations more strict than the National Organic Program (NOP).

MIC is a nationally accredited certification agency, which reports to the USDA. They are a non-profit incorporation which certifies farms in Massachusetts and Connecticut. The application consists of an organic farming or handling plan, which ensures that the farm or handling facility conforms to the national regulations. It includes the organic strategies that will be used to manage weeds and pests. Then, if the plan is found to be compliant with the regulations, an on site inspection is scheduled. The inspection typically lasts two to four hours and goes through the application. A report of the inspection is then filed before the certification committee, which decides if the farm is to be certified organic. The cost of certification depends on how much profit the farm makes. It is $290.00 for farms that gross less than $500.00, and $1,875.00 plus a percentage of the total gross for farms grossing above 5 million.

To minimize the effects of contamination from drift, buffer zones are required. A minimum of fifty feet is necessary, and a larger zone can be required if it is justified. Also, the buffer zone can be reduced if an affidavit of the farms neighbors is filed stating that they do not use and prohibited substances on their property.

Common weed and pest management strategies are cultivations, cover crops, plastic mulch and flame weeding.

There is a wide variety of processing facilities in Massachusetts and Connecticut. There is one slaughterhouse in Stafford Springs, Connecticut that is authorized to process organic livestock and poultry.

A farm can be denied certification if there is a “major noncompliance” in its organic production. A “major noncompliance” is the use of any prohibited substance on the farm. All or part of the farm can be denied certification, for example, if a farm has five fields, and a prohibited substance was used on one of the fields, only that field will be denied certification. When the noncompliance is fixed, the farm can reapply. Yet fixing the problem could take up to three years, for example if a prohibited fertilizer is used on the field and it needs another three years to be converted to organic. Precautionary residue analysis is not normally conducted. Reside analysis may be conducted if the validity of the farm is suspicious or if drift is suspected.

A total of 99 farms were certified last year, 84 of which were farms and 15 of which were processors. Don expects to certify 160 farms, including 25 processors this year. In number, there are more small farms than large producers, but the large producers gross more than the small farms. Geographically, there are more farms in western Massachusetts, specifically west of the Quabbin Reservoir.

Larry Pletcher, President of the Northeast Organic Farming Association in New Hampshire (NOFA-NH)

Larry Pletcher, President of the Northeast Organic Farming Association in New Hampshire (NOFA-NH) was interviewed via telephone on Monday, February 10, 2003 at 4:00 PM by Erin Bliven and Nick Seifert.

The mission of NOFA is to promote organic agriculture. It is an organization of farmers, consumers and gardeners. NOFA does this promotion through education catering to farmers and gardeners. It holds farm tours at organic farms and conferences. Recently, NOFA has begun to have a more active role in public policy.

NOFA has had great success with its farm tour program, which has also served as a mentoring program for new organic farmers. It has held a highly informative conference on biodynamic agriculture. Even though NOFA-NH has success with its education program, Larry believes that the New Hampshire chapter is behind the other state's chapters.

NOFA began in NH in 1971 and was one of the first NOFA organizations to be established. Since 1990 organic production consisted of market gardening by individuals, and there was a very small market. Currently, production has shift more towards farms and demand is huge.

As viewed on a national scale, there are no large organic producers in NH. When the organic market in NH is viewed separate from the national market, there are a few large producers, but mostly small farms. Larry does not see large producers as a problem for the small farmers in NH because local organic products will always be demanded. There will always be a demand for farmers markets and cooperatives. The quality of locally produced organic products will always be greater than nationally produced organic products. The small farmers may have problems breaking into a wholesale market, but there will always be a niche market for local organic products. Since there will always be a market for locally produced organic products, Larry does not see competition from the organic subset of a conventional producer as a problem.

NOFA helps farmers mainly through educational programs. They have received a grant to publish pamphlets explaining the benefits of selling and growing organic products. The pamphlet entitled, "Why Should I Buy Organically Grown Food" and is aimed at consumers. They are trying to set up a network with other organic organizations to encourage organic farmers to sell to restaurants and other small-scale retail sectors... NOFA also assists consumers in that they increase organic food demand through education. Lastly, they encourage markets to buy locally grown organic products. These programs are successful. The marketing program is relatively new, but has shown successes in the Connecticut area.

Currently, organic farmers are not getting enough help. Efforts have been made to make organic farming more appealing to conventional farmers, so that they convert.

In the future, Larry hopes that the organic market will continue to grow at its current rate of 20% per annum. He would like most of that growth to be in local production. There are currently not enough local farmers to support the demand at local cooperatives. He would also like to see more restaurants buying local organic products. Generally, supply needs to increase so that more consumers and restaurants can have easy access to organic products possibly through a wholesale distributor.

Ryan Voiland, Owner of Red Fire Farm

Ryan Voiland, owner of Red Fire Farms, was interviewed on Wednesday, February 12, 2003 at 9:00 a.m. Ryan has been a certified organic farmer for 7-8 years. For approximately 4 years prior to that, he ran a very small organic farm that was not certified. His main crop is vegetables. He also grows tomato plants in his greenhouse, as well as berries and flowers. While cattle graze on land that he leases to another farmer, he does not incorporate livestock into his operations.

He sells most of his products through two farms stands that he owns. Other outlets include farmers' markets and deliveries to local restaurants. He also has a CSA of approximately 150 members. He has structured his farm to maximize his growing season and to give him the requisite variety to stock his farm stands. He does not sell wholesale to

supermarkets because they would demand delivery of a large quantity of the same product. He has found that they often do not pay a fair price and he objects to delivering his products to distribution facilities that are hours away for his vegetables to be trucked back to supermarkets near his farm.

Ryan has always been an organic farmer and has therefore avoided the challenges of conversion. He grew his farm up from "almost a garden scale." Organic farming is more labor intensive. For example, while conventional farmers can use herbicides to control weeds, organic farmers must rely on hand weeding. Furthermore, in organic farms, "you take shortcuts on management." The farmer needs to thoroughly understand the farm and watch the land closely. This usually keeps organic farms small.

Ryan's pest management techniques vary with the crop. He works with the natural systems, using crop rotation to "outsmart" the pests and diseases. Techniques such as staking tomatoes are also effective. He uses some creative techniques to deal with other pests. He guards against the flea beetle, a perennial threat to arugula and bok choy, with a row cover, a large piece of mesh hung over a field. This is expensive, however. Row covers are also used to protect against the cucumber beetle. In addition, powdered clay is sprayed on the young plants to mask the scent of their leaves.

Like most farmers that we spoke with, Ryan did not give a positive critique of the USDA's National Organic Program (NOP). Since the NOP assumed certification responsibilities previously handled by independent groups at the state level, an additional layer of bureaucracy has been added and the certification fees have doubled. Ryan has concerns about the potential for certification standards to be "watered down." He believes that the program has been designed so that the "same corporate, mega-food industry that controls conventional foods" will be able to enter and dominate the organic food market. He fears that small farms like his in the Northeast that were at the forefront of the organic food movement might be lost if forced to compete with large corporations.

While Ryan realizes that large competitors can drive prices down, he realizes that it is unrealistic to expect all of the eastern seaboard's food to be grown local. However, he believes that by buying local, much can be gained, including environmental benefits from the reduction of pollution involved in transporting food.

Bill Duesing of the Northeast Organic Farming Association in Connecticut (NOFA-CT)

Bill Duesing of the Northeast Organic Farming Association in Connecticut (NOFA-CT) was interviewed via telephone on Wednesday, February 12, 2003 at 10:00 AM by Erin Bliven, Brian Landry and Nick Seifert

The mission statement of NOFA-CT was emailed to us by Bill and is: "Connecticut NOFA is a growing community of farmers, gardeners, land care professionals, and consumers that:

- Encourages a healthy relationship to the natural world;
- Promotes methods of farming, gardening, and land care that respect biodiversity, soil, water, air, and the needs of future generations through education, support, and advocacy;
- Encourages the growth of a sustainable, regional food system that is ecologically sound, economically viable and socially just;
- Educates consumers about their power to effect positive changes through their food and land care choices;
- Increases the local and organic food supply and maintains productive agricultural land by creating opportunities for new and veteran farmers."

NOFA is a non-profit organization that is one of seven NOFA chapters, including all New England states, except Maine, and also New York and New Jersey. NOFA has a wide membership base, including farmers, gardeners, land care professionals and consumers. The main function of NOFA is to educate its members and encourage regional sustainable agricultural methods.

Bill has many roles in NOFA. In Connecticut, he is the Coordinator of Organic Education and Advocacy and the Coordinator of the Organic Land Care Program. The organic land care program supports non-farmers in upholding environmentally friendly standards of land care and landscaping. In his capacity as the CT representative to the NOFA Interstate Council of all its state chapters, Bill serves as the President of the Interstate Council. He is also the Coordinator of the Interstate Council and oversees all the state chapters.

The major success that NOFA-CT has had is certification of many farms. The certification process began in 1987 when it was realized that organic certified farms were in demand. NOFA established a certification program because the United States Department of Agriculture (USDA) would not certify farms. The USDA recently in October of 2002, with the adoption of the National Organic Program (NOP), took over the certification process. The certification process has allowed the farmers to reliably sell their organic products to consumers.

NOFA has also had smaller, but not less important successes. In the mid 1980s, they began publishing a directory of organic farmers for consumers listing the farmers markets in CT. For the last five to eight years, NOFA has sponsored a Transition to Organic Conference, in which in recent years there has been increasing interest. In 2001, NOFA began a new annual tradition, a "Taste Organic Connecticut" festival with organic food, crafts, education and music. At least 700 people attend the event where the farmers and crafters reported good sales and valuable workshops. Through education of consumers, the interest in organic food and local organic food has increased. Specifically, college students are becoming increasingly involved in organic production methods. For example, students at Yale University in New Haven have successful converted one dining hall on campus to organic.

NOFA has been active in CT for the past 21 years. When the chapter first began, supporters of established agriculture thought the founding members were crazy, and that there would not be any interest in an organic farming association. When it first began, NOFA received no help in promoting organic products from the federal government.

In the past 21 years, Bill has seen amazing growth in the organic market. When the chapter first began, there were 40-50 members, now there are 400 members. NOFA has always published a directory of all organic farmers in CT in 1982 there were 20 farms in the directory, none of which were certified organic. Now there are 55 certified organic farms. Farmers have also grown in their skill levels, knowledge and innovative practices. The information farmers share has enabled them to evolve their farms so that they gross more and have better fertilizer and land care strategies.

Bill considers there to be four major concerns in organic production: knowledge, control, energy and connection to community. Knowledge is important because most consumers are ignorant about where their food came from and how it was produced. Control is an important issue so that consumers do not lose control of the food system so that large food producers take over. Specifically, consumers have no influence over large, multinational food producers. Those producers have most of the control over the entire food system. Consumers need to take back some control through supporting or participating in local farming. Energy is of concern because of the pollution involved when products are transported to retail outlets. Lastly, a positive connection to community needs to be

established. Large producers create a negative connection to community in that they can destroy communities. Small farms, in contrast, help to build communities.

He thinks that small farmers are important because there is no better way to learn land management practices except from these farmers. Bill believes that everyone should be growing some of their own food so that they are connected to the land. Otherwise, if people do not have a personal interest in the food they are producing and eating, the only concern food has is price. Currently, food in the United States it too cheap.

It is of concern that the larger the farm is, the lower the wages its workers are paid. Consumers need to be more aware of the damaging social effects their food may have on communities far away from theirs. Consumers should also strive to know where their food came from and how it was produced or processed, in attempts to establish a participatory food system.

When a large farm enters the market small farms are often driven out of the market. Bill views the driving out of smaller farms as an "unstated policy of the USDA" in that it is easier for the USDA to deal with the large farms, and almost a hassle to have to certify many small farms.

As for the quality of organic product produced by a large farm, it is difficult to generalize if quality decreases. The most important concern with large producers is to consider all the aspect of production and getting the food to the consumers, such as transportation costs and any social problems associated with the large producer. With large producers, 81% of the price of a product is spent on transportation costs. Many of the qualities associated with a local market, such as flavor and freshness, are lost when a product is transported many miles to a grocery store. If more people ate local food straight out of the ground, and not out of a supermarket, they would notice the difference in quality.

Large, conventional food corporations with an organic subset are troubling to Bill. He sees companies like Dole entering the market as a way for them to use subsidies and political power to dominate the organic market. Luckily, more people are learning the importance of local organic markets, and if more people are buying locally companies like Dole may not get to be as successful as they would like. Bill likened the recent local organic food movement to the original organic food movement which began in the 1970s. With any luck, a local movement will be as successful as the organic movement has been.

NOFA helps farmers mainly through education. Most of NOFA's activities provide farmers, gardeners and consumers with information that the government is not supplying. NOFA provides assistance to the farmers in applying for Sustainable Agriculture Research and Education (SARE) grants from the USDA. There is also a network called the Northeast Organic Network (NEON), which consists of researchers and exemplary farmers. NEON studies farms to see what organic practices and strategies are most successful. These efforts, although helpful, many not be enough help for the farmers.

The government does not help farmers nearly as much as they need. Farming on a small scale is not economically sustainable. Even a successful small farmer may make at most $5,000.00 a year with half of his income coming from the government. Organic farmers tend to make a little more money because of price premiums, but it is not enough to live on. In order for the small organic farms to be sustainable, there needs to be an economic support system for their niche. Most of the land colleges in the United States benefit large corporations and genetically modified organisms. Few offer substantial aid to small organic farmers.

The organic farmers in CT tend to market their products through local avenues. Community supported agriculture, farmers markets, selling to the Certified Organic Association of Growers Cooperative, farm stands and selling to friends and neighbors are a few of the local routes of marketing. Some market their products to colleges and universities

like Yale or Wesleyan. Lastly, some sell their products wholesale, yet this method is less appealing, primarily because of how the food actually gets into the store. For example, Bill spoke of a farmer in Glastonbury who wanted to market his products in a Whole Foods store in Greenwich. In order to do so, the farmer's products were transported from Glastonbury to Hartford, then to a warehouse in Boston before being shipped to the Glastonbury store. The transportation chain in unappealing to organic farmers because of the energy used in it.

In the future, Bill hopes to see more growth in the local organic market. He would like to see more people get into organic farming to increase diversity of products.

Dale Perkins of the Heifer Project

We interview Dale Perkins on Wednesday, February 12, 2003 at 4:30 p.m. Dale works for Heifer International in Rutland, MA. Heifer International is a non-profit organization that fights hunger and poverty throughout the world by providing training and livestock to farmers. The organization has been in existence since 1944.

Heifer operates a farm in Rutland, MA to educate students about poverty and sustainable agriculture. The facility receives approximately 20,000 visitors each year, ranging from grade school field trips to two-week experiential programs. The majority of visitors are high school students. Heifer hopes that these visitors have life-changing experiences that increase awareness of global issues.

Heifer International is well respected through out the world for their holistic approach that focuses on empowering local communities and families. The facility in Rutland is in constant demand from schools.

The farm in Rutland has been certified organic since 1993 to illustrate sustainable practices. They will not renew their certification this year because they are a small farm with a loyal customer base that knows their practices will not change. By not renewing the certification, Dale avoids the application process which can take 3-4 days to complete. Also, they will not be required to adhere to stringent record keeping.

Paul Maiewski, Farmer in South Deerfield, Massachusetts

Nick Seifert and Brian Landry interviewed Paul Maiewski on Thursday, February 13, 2003. Paul is a potato farmer with about 135 acres in South Deerfield, MA. He sells his crops to local supermarkets. While other farmers have expressed difficulty in dealing with large markets, he has found that they are generally easy to work with. The key is providing products in the way that the stores are expect. This means packaging them in a manner consistent with the industry. The quality also needs to be consistently high.

Paul sees marketing as the biggest challenge to organic farmers. He says consolidation as threat and he hopes that being small won't affect sales. However, many supermarkets in New England prefer to purchase locally, so this is an advantage for local farmers.

Pest management can be a problem. He tailors his pest management techniques to cost-benefit analysis. Some pests are not controlled because it would not be economical.

Paul is on the regional certification committee for the National Organic Program (NOP). However, he is not sure that the national program is the best idea. He believes that a national standard created by an independent third party might work better. He also stated that it was easier to obtain certification through the state certification boards that preceded the NOP. He stated that large farms have the biggest interest in becoming certified. If farm profits range between $5,000 and $50,000, they receive the smallest benefits from the NOP.

Paul cited advantages and disadvantages related to farm size, depending on the crop. For example, crops like potatoes scale well, whereas salad greens do not. A disadvantage

that small farms of all varieties do have is not being able to produce enough products to satisfy larger supermarket chains.

Chickery Kasouf, Professor of Management at Worcester Polytechnic Institute

Professor Kasouf is an Associate Professor of Management at WPI. He has researched the market forces involved in automotive supply and biotechnology. Brian Landry interviewed him on Friday, February 14, 2003 at 9:30 a.m.

Professor Kasouf suggested that part of the difficulty that organic food farmers are seeing is from the demand-side. Therefore, it is important to look at what is valued by consumers. If there is not a compelling reason to purchase from small producer, consumers will make buying decisions based largely on cost or brand loyalty. High involvement purchases, in contrast, are typically risky, self-expressive or expensive. For this reason, small producers need to emphasize "points of differentiation" between their products and products produced by large producers.

He also discussed the role of slotting fees in the retail food market. Slotting fees are charged by grocery stores in order to stock a product. The Independent Bakers Association fought unsuccessfully against slotting fees before the Federal Trade Commission and records of these hearings are available online.

Professor Kasouf expressed skepticism about the organic food market. He recalls the hype generated by fat free and low fat foods during the 1980s followed by poor market performance. For further information, he suggested contacting Jean Kinsey, Co-Director of The Food Industry Center at the University of Minnesota. He also referred us to *Marketing Management* by Philip Kotler.

Joanna O'Brien of the ARTichoke Co-op

Joanna O'Brien of the ARTichoke Co-op was interviewed on February 20, 2003 at 2:15 PM, by Erin Bliven, Brian Landry, and Nick Seifert.

This interview was conducted at the ARTichoke Co-op, located at 800 Main Street Worcester, MA. We began by briefly discussing the contacts that we had previously spoken to, and were given a folder with some additional contacts. To set the tone for our interview we provided a bit of information regarding our project, NOAH, what we hope to accomplish in Denmark, and research previously conducted.

After receiving permission to use any information obtained in our final report, we began the interview by asking: "What is the ARTichoke Co-op?" The co-op is interested in providing healthy, organic food for the neighborhood that it is located in. Unfortunately due to market constraints it is impossible to sell entirely organic products, however about ¾ of the products sold are organic. The reason for this choice to sell organic products has to do with the health benefits of organic food. It also has to do with the increase pollution often associated with organic production, especially for larger agricultural operations.

Prior to the opening of the co-op, an entrepreneurial organic co-op in Pennsylvania that existed around 30 years ago served as a source of inspiration for the ARTichoke Co-op. During that time Joanna wanted to make sure that her children were being fed healthy food. The ARTichoke Co-op opened about 1 year ago, and had an additional year of planning prior to that. It is run almost entirely by volunteers and members with a vested interest. The underlying philosophy of the store is to provide food that is "produced in a way that will not hurt anyone". Another part of the distinct character of the co-op is the fact that it is a non-profit organization. This is illustrated by the fact that their mark-ups are typically around 33-35%, just enough to sustain the store. To help shift the percieved cost of food, Joanna

O'Brien believes that it is necessary to understand the full environmental impact of buying food.

Joanna spent a bit of time talking about the new organic standards, and their limitations. These limitations become obvious when you begin to look at products such as canola oil, or the oils used for peanut butter. These types of product are often genetically modified organisms and/or not organic.

The consolidation of various aspects of the organic industry were discussed, including examples, and economic impacts. Northeast Co-op, the leading distributor of bulk organic goods in the northeast, was recently acquired by a larger company. Farms that began small in the organic industry, such as Cascadian Farms, have become "mega businesses" drawing their products from multiple locations, many of which may not be local. Joanna O'Brien believes that this consolidation of farming is a threat to "food security", though sees the general trend towards organics as a good thing. The security issue arises from the fact that a city such as Worcester would be unable to produce enough food to feed its populace if such a measure were necessary. Though when asked about larger markets switching to organic, Joanna said that "If they could put us out of business, that'd be great", as long as their methods were in line with sustainable practices.

To the greatest extent possible the ARTichoke Co-op relies on local organic farmers for produce in the winter, and summer. One problem that they have is finding certified organic milk locally. Another issue to keep in mind when choosing a brand of milk, is whether or not it is ultrapasturized, which removes enzymes that are useful to humans. One of the aspirations of the co-op is to connect farmers to the people that need the food. A successful method for this is through a CSA (community supported aggriculture) program, which may end up being a better deal for the farmer.

The role that the ARTichoke Co-op plays in the food market is one that focuses on the neighborhood, and the members of that neighborhood. Though interestingly enough a significant portion of the members are from the suburbs. One of the ways that the co-op gets people from the community involved is to encourage volunteering; the store currently runs with the assistance of about 24 volunteers, many of who are from Clark University.

The supply chain for for the ARTichoke Co-op begins with any local producers of products. Though organics are important, locally grown/produced products of equal or greater quality are given precidence. Even though the locally produced products may cost a bit more, people are wiling to pay more, especailly for produce. The second source of foods is the Northeast Food Co-op.

Appendix F: Interview Summaries from Actors and Experts in the Danish Organic Food Market

Michael Borgen of Hanegal

Michael Borgen of Hanegal was interviewed on Tuesday, April 08, 2003 at 13:30 by Erin Bliven

Hanegal has been an organic meat producer since 1994. In the beginning the company produced raw meats then introduced a line of sausages, prepared meats, and bacon. Hanegal has always been certified organic. In addition to the slaughterhouse in Silkeborg, Hanegal has a factory in Haderslev in South Jutland, which is the main production facility. The economic turnover of the company is about 26 million DKK annually, which is not large. Roughly 70% of that turnover is prepared meats, the rest is fresh or frozen meats. Hanegal is a corporation owned by ownership of stocks. Currently 93% of the stocks are owned by the director Kern Ulrich Hansen and his wife Fie and 7% are owned by the farmers. Hanegal is looking for a new investor after the loss of their previous investor, Gaea Technologies.

Hanegal's product line consists of eighteen different prepared meat products including the Danish specialty leverpostej, a pate made out of liver. The additional products include smoked and non-smoked sausages, bacon, fresh meat for butchers, and frozen meat for supermarkets. All the products are 100% organic.

Hanegal's pigs are not fed 100% organic feed, but they feed they are fed satisfies the feed requirements of the Danish organic regulations. Certain strains of pigs are not used because Hanegal buys its pigs from about fifty farmers and other companies, and it would be difficult to keep those farmers as produces if only a certain strain of pigs could be used.

The farmers, which Hanegal purchases pigs and other animals from, are members of a delivery association, which have stock in Hanegal. These farmers are the main deliverers to Hanegal.

Hanegal as a whole stresses animal welfare and environmentally sound production. One of its main philosophies is to make their products in a fair way using as few raw materials as possible. Hanegal does not use additives in any of its products, even if they are allowed, because they are not necessary. One of Hanegal's animal welfare policies is that the company chose to pay more for pigs that are raised and spend their lives on fields. Ulrich Kern Hansen, the director of Hanegal was an active member of an association for the protection of animals. Animal welfare is important to Hanegal. Hanegal is based upon the ideals of organic production, and Ulrich would rather close the company than have it produce conventional products.

Hanegal's slaughtering plan differs from that of a conventional slaughterhouse. Hanegal allows its animals to have access to fresh air prior to being slaughtered. Hanegal's animals are also housed outside with access to inside shelter. Animals that are received together are housed together without the introduction of new animals to them. Keeping the animals together keeps them calm and less nervous. To slaughter the animals they are given electric shocks to the head and their throats are slit. Some animals are shot in the head. Other slaughterhouses use carbon dioxide gas to slaughter their animals. The use of carbon dioxide is not feasible for Hanegal because the slaughtering facility is small.

Hanegal's products are marketed in two Danish supermarket chains, COOP Denmark and Dansk Supermarket. The company also sells directly to other supermarkets outside of those chains. Lastly, Hanegal supplies some institutional kitchens with fresh and frozen meat. These markets were chosen out of practicality. In the beginning, they were the only realistic place where Hanegal could sell its products. COOP Denmark was the only place

where enough products could be sold to generate a profit. Years ago when COOP Denmark first approached Hanegal it wanted them to deliver to SuperBrugsen which caused Hanegal to build its factory in South Jutland. Hanegal had to guarantee a certain supply to SuperBrugsen. The supply was large enough to require Hanegal to begin industrial production. Yet Hanegal's factory is very small compared to Tulip's. Hanegal has tried to market its products in other arenas with very little success. There had been tries to get Hanegal's products into English and Swedish markets with no success. Foreign market efforts were abandoned because of the lack of success and because the Danish market strengthened, and the company decided to focus its efforts on the home market. There have been attempts to market through box schemes, but they were not very profitable. Supermarkets remain the main market for Hanegal's products.

Getting their products into the supermarkets was not difficult at first because COOP Denmark wanted them. Now it is constant work to keep the products in the market because other companies want a piece of it. For example, Tulip produces organic bacon. Farre A/S is another small conventional competitor that produces sausages, liver pate and bacon. Lastly Green Matter is a small meat company that produces organics. Hanegal is the only small company that delivers to COOP Denmark and Danske Supermarket.

Recently, the supermarkets are in increasing competition, resulting in decreasing the number of companies that supply to them. The supermarkets are now in a position where they could tell Hanegal that they do not need their products any longer. Yet Hanegal has always had enough variety and supply of products to keep them demanded by the supermarkets. It is always a fear for small companies that it will not have enough products for the supermarkets to want them. It is increasingly difficult for an organic producer to stay in the market because they cannot pick the price of their products, they will always be sold at a high price.

Demand for the organic products as compared to demand for conventional products is small. Yet when considering that Hanegal's products are in many supermarkets and the brand is well known among people who buy organic, demand is sufficient.

The market is not profitable, and because of that Hanegal has many economic problems. Michael described Hanegal as a growth company. He said it is difficult to be a small company supplying to the supermarket sector. The larger companies can afford more advertisement and commercialization, Hanegal cannot.

There has been consolidation in the organic meat sector, specifically Danish Crown's purchase of Friland. Prior to that consolidation, Friland was the largest independent organic company, even though they were not solely organic. Consolidation within the meat sector has not been as violent as in the milk sector, probably because the industry is not as profitable. Danish Crown is trying to improve the Friland brand through product development. When Tulip began making organic bacon, Hanegal's market for organic bacon in COOP Denmark was severely decreased. COOP Denmark purchased Tulip's bacon because it was cheaper. Now only Irma stores sell Hanegal organic bacon. This is a problem for Hanegal, but not a major issue because organic bacon was never their most important product, and there is still a market for their other meat products.

Competitively Tulip's organic products are more of a potential threat than actual threat. Currently their only organic product is bacon, and they have not gotten into other organic processed products or fresh meats. If Tulip decides to begin making more processed organic meats, then that will be a huge problem for Hanegal.

To keep their place in the market and to avoid competition from Tulip, Hanegal introduced six new products last year. Hanegal tries to introduce products that are very different from ordinary meat products. By doing that, Hanegal makes their new products less interesting for Tulip to produce because they are niche products. When Hanegal began it

produced mainstream products in an organic way, now they focus more on making niche products that Tulip cannot easily copy and steal the market. The niche products also help strengthen the Hanegal brand as quality, specialized products. The products introduced last year include pate without pork, all beef sausage, changes to some boiled sausages to make them more allergy friendly and low fat, and low fat smoked products. Michael thought that this is one of the key methods small companies use to stay in business. He could not say that the innovative products cause Hanegal to stay in business from year to year, but creating them is strategically necessary. Without the new products competition from Tulip would be a larger threat. Also, if Hanegal spent its time and money further developing mainstream products, Tulip would destroy them. Tulip will always have more money for mainstream product development, yet Hanegal will be able to create niche products to compete with them.

The ideas for the new products came from consumers and supermarket chains. Yet Hanegal had the final decision on which products would be made depending on which products would be economically feasible and profitable.

The biggest challenge facing small organic meat producers is that the market is small and the companies do not have enough money to develop it. Supermarkets demand a supply of organic products comparable to the supply of conventional products. It takes a large amount of money to fulfill that demand, making it very difficult for a small company to supply to supermarkets. Product development and marketing is also demanding and expensive. Hanegal occasionally will do an in-store demonstration to market their products, but these are expensive.

If the market were to grow, it would be of more interest to Tulip to develop organic meat products, and could also be more troublesome for Hanegal. Since the market is so small Tulip is not very interested in it because it is not that profitable. If the market was to grow it would be more of a challenge for Hanegal to stay in business. Yet Michael would like to see the market grow. Currently, Hanegal's sales account for 70-80% of the organic meat market, and those sales seem too little. Idealistically, Michael would like to see the entire meat market as organic.

There is growth in the organic meat market, but it is not growing quickly. The organic meat market is less than 1% of the entire meat market, so there is great potential to grow. Hopefully organic meat could reach the market share level of organic milk, about 25% of the market. It is easier for small companies to contribute to this growth because their market shares are usually so low and can be doubled more easily than if their share was large. They can also easily double their market share through the development and introduction of niche products. The market for organic products is very dynamic. Currently it is not growing much because there is not a focus on the issues surrounding organic production. Now people are more concerned with other social issues, not on the environment and animal welfare. It might be a waste of time and money for an organic company to advertise their organic products because the general public are not concerned with the ideals of organic production. Instead marketing could be focused on the products themselves and not the fact that they are organic.

Hanegal has adopted the marketing strategy of focusing on quality products less on the fact that their products are organic. Recently a new label design was introduced focusing on the quality and high price of the product, not on its organic production ideals. The new label stressed the Hanegal brand and has a small story about the company on the back of the label. The Danish organic seal is less prominent on the packaging, and is printed in silver instead of in red. The old labels stressed the fact that the products were organic by having a red Danish organic seal and Hanegal in smaller print. The new labels came to be largely because Hanegal need to differentiate its products from Tulip organic products Having easily

recognized labels is a piece of Hanegal's product focused marketing. A second aspect of Hanegal's marketing is through the media. Hanegal is often in the news for being a reputable and trusted organic company. They do not pay to advertise on TV or in newspapers and rely on the news media to spread Hanegal's good reputation. Michael felt that Hanegal's combination of their well-known image and easily recognized packaging are the best forms of marketing.

It has been Michael's experience that conventional companies that produce an organic product focus on the fact that the product is organic. Whereas a small organic company focuses on the quality of the product and brand recognition.

Karsten Borrisholt of Irma

Karsten Borrisholt, Product Manager for Meat, Fish, Poultry and Delicatessen for the Irma supermarket chain was interviewed on April 25, 2003 at 11:30 by Erin Bliven and Nick Seifert.

Karsten was not sure when Irma began stocking organic meats. He believes that organic meats were first stocked in the early 1980s, between 1980 and 1984. The company started with a few products and later stocked more. Irma's motivation for stocking organics was to have a large range of special, high quality products. The high quality products were sometimes organic products, which is why they were first stocked. Also, many consumers were interested in organic products, and led to the supermarket stocking them.

Currently Irma stocks organic chicken, organic charcuterie, other organic meats, liver pate, and sausage. Hanegal supplies all the charcuterie and Danish Crown and Friland supply the raw meats. Out of all the organic meat products, liver pate has the highest demand. Organic meat sales account for about 10% of all meat sales in Irma stores.

Customers are not always satisfied with the selection of organic products. Sometimes customers say they want certain organic products, but when the products are actually in the Irma stores customers do not purchase them. If customers are not purchasing the product, it will no longer be stocked in Irma.

Karsten viewed the main barrier to stocking organic products is their high price. Because organic products are more expensive they are not purchased as frequently by consumers and may be dropped from the supermarket's shelves.

The companies that supply to Irma have always been able to meet the supermarket's supply demands. In selecting the companies to buy products from, Irma looks for professional companies who will be able to meet the supermarket's supply demands in the long run. Irma has tried to do business with many small suppliers, but within two to three months the company either goes out of business or is otherwise unable to meet supply demands. The small companies are also usually not able to develop the new products Irma likes to stock. Even though Irma likes to stock new, innovative products, they do not always succeed with consumers. On average one out of ten new products survive.

Organic products will always be in Irma stores. Karsten hopes that their sales will increase in future years. The main issue in selling the organic products is to have them be high quality. In order for sales to increase the most important characteristic of the product must be its high quality and the fact that its organic should be a secondary quality. Now consumers are more concerned with buying products that are good for them and are high quality and are less concerned with buying products that are good for the environment and organic.

Johannes Christensen, Lars-Bo Jacobsen and Brian Jacobsen of the Danish Institute of Food Economics

Johannes Christensen, Lars-Bo Jacobsen, and Brian Jacobsen were interviewed by our entire group on Tuesday, April 1, 2003. They are researchers at the Danish Research Institute of Food Economics (known hereafter as "the Institute"). The Institute is funded by the Ministry of Food, but is independently operated. It is divided into four divisions: "Agriculture Policy Research", "Farm Management and Production Systems", "Fisheries Economics and Management" and "Statistics".

The Institute has been collecting statistics on organic farms for the past 7 years. They also research all questions of agricultural policy and agriculture and horticulture in society from the farmer's viewpoint. Additional research studies the economics of farm size, organic farming, the use of agricultural products for non-food purposes and the use of pesticides from an environmental point of view. They have also studied the price premiums paid for different types of products (dairy, pig, vegetable) and determined what premiums are necessary for these types of production.

The dairy structure was discussed at length. Organic milk was originally the province of a few small dairies. Arla, the largest dairy in Denmark, was originally not interested in organic milk, but entered the market when it became profitable and after pressure from consumers and supermarkets.

There have been complaints of unfair competition by Arla, including efforts to suppress prices to eliminate competition. Denmark has an agency to investigate competition and they have studied the dairy industry several times. None of these results have yielded any changes. A new investigation was recently proposed.

There is also an internal debate among the farmers that Arla buys milk from. Because Arla has a large surplus of organic milk, up to 70% of organic milk is not sold as organic. Because of long-term contracts that Arla signed with dairy farmers, they will continue to pay premium prices for this surplus milk. Conventional dairy farmers complain that their prices are driven down because of this surplus.

Like most of our interviewees, Christensen, Jacobsen and Jacobsen felt that government regulation in the organic food industry had been a positive force. The Ø-mark conveys a sense of trust to consumers. They feel that regulations will need to be tightened in the future if there will continue to be a difference between organic and non-organic products. Currently, non-organic farming is moving closer to organic farming, diluting the meaning of "organic". They do not anticipate many changes with the advent of the EU. Regardless of who sets or administers the rules, they believe that consumers will decide what organic will mean in the end.

The interview then moved to the issue of consolidation. The researchers have some concerns about consolidation, but saw it as a natural part of the market. Ultimately, people will by cheaper products if they can, and mergers often allow this. They are concerned about innovation, as new products often come from small companies. They believe, however, that there will always be a niche for small companies that pioneer new areas. But like most sectors, large companies observe these developments and move to capitalize on them.

The researchers see supermarkets as barriers to small companies because they want to deal with one brand of a particular product. Also, they demand large quantities that small companies can often not produce. These problems are not endemic to organic companies, but rather apply to small producers of all types.

Christensen, Jacobsen and Jacobsen believe that the market share for organic food will remain constant for the next few years. There is the potential for growth in vegetables if techniques to lower the production costs are developed. However, they do not anticipate

many developments of this nature. Another possible cause for increase would be studies showing that organic food is healthier than conventional food or a mad cow-like outbreak.

Conventional producers are also looking at issues such as food safety and higher quality food. Therefore it will be difficult for organic market shares to rise above 5-6%.

Lisbeth Damsgaard of Ø-Gruppen

Lisbeth Damsgaard of Ø-Gruppen was interviewed on Wednesday, April 9, 2003 at 16.00 by Erin Bliven, Brian Landry and Nick Seifert.

First Lisbeth told us about growth in the organic market since she has been involved with it. Biodynamic foods in Scandinavia were always strong, and there was always a market for them with dedicated people involved. Biodynamic farming began in the 1930s and was revised in the 1960s when the first organic products were introduced in Denmark. Lisbeth was involved from 1971 with the opening of a natural food shop with her husband. At that time there were few organic farms and their shop was the first organic shop. The little store later grew into a company, which made contracts for organic foods with farmers and began importing products.

In the beginning the organic market grew largely through health and natural food shops, not through the supermarket chain. There was also considerable growth through co-ops established in the countryside. A union later grew out of those co-ops, which was also important for the growth of organic foods. Organic Denmark has also helped the organic market grow, on all levels from consumers to farm to companies. If it could be proven scientifically that organic products are healthier than conventional products, the market would grow.

Lisbeth also saw considerable growth in her company, Urtekram. The company started as one store and grew into an international network, which was very important to the organic business. In the late 1980s and early 1990s there was slight decrease in growth for organic foods because of a general depression. Then in 1992-93 there was a big jump in growth. At that time Lisbeth persuaded the chain of Irma stores in Copenhagen to stock organic products and to arrange them together on one shelf. The products were successful and sold well. The success of the Urtekram products in 1993 coincided with many conventional farmers converting to organic production. Until this time most of the organic products were sold in natural food stores, but a shift was beginning towards sales in supermarkets. Danish organic products are different from organic products in other countries because they have penetrated the market so greatly, especially with milk products.

Growth in the organic market continued until 1999 when growth decreased slightly. Now there are more direct sales than there were when organic products began. These direct sales, specifically box schemes and farm stands represent 20% of the total organic sales. These alternative sales are expected to grow. Box schemes and farm stands are almost replacing old-fashioned co-op sales. The major downfall of these marketing avenues is in the organic meat sector. Growth of the organic market began largely with vegetarians, which is one reason why organic meat is so difficult to market and sell. Direct sales of organic meats are working well and growing, mostly with pig products, lamb, and chicken.

Government subsidies have given organic farming a major boost. The government has successfully spread the subsidies over all sizes of companies, to all types of farming and to research. Prior to 1996-97 the majority of the subsidies were going to big companies, but this was seen as a problem and fixed so that all companies could receive subsidies. Recently there is more governmental focus on innovative product development and expansion of sales. New, functional, innovative ideas are now being subsidized. The subsidies have also affected sales of organic products. Last year there was a direct sales campaign directed at the dairy

sector, which boosted sales. Lisbeth sees growth in the organic sector as oscillating. She believes that growth has fallen in recent years and its now should begin to grow again.

Organic subsidies will always be needed because it will always be easier and cheaper to produce products conventionally. Also there is a great deal of grass roots work in Denmark regarding organic products. This work combined with subsidies for product development and marketing will help the market grow. Thankfully the Danish market is special because everyone is interested in organic products, not just idealistic companies.

Lisbeth thinks that having subsidies aimed at companies being more environmentally sound will not hurt the organic sector. Organic products are different from conventional products on many levels, even if the production of conventional products is becoming more green. Idealistically, the greener production is, regardless of it being conventional or organic, the better it is for mankind. Organic products are constantly being developed in the ways they are grown and processed, and will always be different from conventional products. As a result of these environmental subsidies, organic regulations should not be more strict, but there should be more consumer knowledge of the secondary qualities like health benefits of organic products.

The organic regulations have given the organic market an easier platform for growth, largely because they are such an integral part of the Scandinavian organic framework. Currently there are pressures from other countries to create more lax regulations, however Denmark prefers stricter rules. Regulations are controlled by the state in Denmark, which differs from other countries, possibly explaining Denmark's direct interest in keeping strict regulations. Also, the Danish people are health and environmentally conscious and prefer strict regulations. Lisbeth anticipates a shift toward centralized regulations under the European Union in the future. Yet this shift will take some time. The shift may also not be popular if one organic logo is made for the entire European Union because the individual countries will believe that their national logo was better than the EU logo.

Lisbeth has seen a trend towards consolidation in the organic market. This consolidation has resulted in the market being more commercialized. For example at the largest organic trade show in the world, all the food stands have gotten larger and more commercialized. Since the industry has been profitable, large commercial companies want a share of the market. This may be a threat for some companies, but it shows that organic products have a permanent place in the market, which will help further growth. Commercialization can lead to growth through competition. Lisbeth thinks it is important to develop growth and the market for organic foods in general. She is not for big conglomerate companies, but would like all people to have access to quality organic products. In spite of the commercialization there is still innovative, grass roots growth in the market.

There was also much interest in the mid 1990s from conventional companies wanting to have an organic product. Yet most of these companies withdrew from the market when it began to be less profitable. Now some of the conventional companies are coming back into the market. These companies are always quick to enter and quick to leave the market, causing them to not be as innovative as solely organic companies. Companies entering and leaving the market also causes it to be more competitive and profitable for the companies that stay.

Lisbeth hopes that the organic market can grow another 10% to match the percentage of organic farmland in Denmark. Growth could be achieved most easily in the meat sector, because its market share is so small. If organic meat products are marketed better and consumers have more of an opinion in their product development, growth should be easy to achieve. Meat prices also need to fall and the meat must be sold in a form consumers demand, such as certain meat cuts. Lisbeth hopes there will be more growth in vegetables and fruits as well as meats.

The largest barrier for small companies getting into the market is money. But this is not a problem just for organic companies, or just food companies, it is for all companies wanting to start a business.

Consumers in Denmark are very willing to purchase organic products. Lisbeth thinks that all consumers would consider themselves occasionally buyers of organic products, usually milk products. Consumers are buying into an image when they buy organic products, making them feel healthy and as though they are helping the environment. It is also common for consumers to purchase organic products in Denmark, almost an everyday occurrence, in spite of their high prices.

Next the interview shifted to discuss Urtekram. Urtekram was founded in 1971 by Lisbeth and her husband. The company grew out of the small natural food shop they started together. She imported some products from Japan, and also worked closely with farmers at the farm level. The small shop grew quickly because other people wanted to open shops and Lisbeth's shop was servicing a co-op. She then began importing products from Italy, Spain and France. By 1985 the company had to be turned into a public company because it got too big for Lisbeth and her husband to handle. In 1985 the company employed 15 people, by 1988 it grew to employ 35 people. Throughout the 1990s Urtekram was always profitable and innovative. During that time Lisbeth was unsuccessfully campaigning for an organic label and universal regulations. Then in the mid 1990s two of the companies Urtekram was using for raw materials suffered some economic loses. Urtekram then lost money because those companies lost money. Because of those loses, Urtekram was forced to seek out capitol input from what they thought was a foundation. Yet this foundation ended up throwing them out of their own company, in a, "usual American hostile takeover" not common to Denmark. Now the company is not as profitable was it was when Lisbeth was involved and her and her husband are trying to reach a settlement with the new owners so that they can start a new company or take Urtekram back.

Urtekram was successful largely because it was based upon the philosophy of being able to eat what you use and to know where the products were coming from. Because of these philosophies Urtekram developed cleaning products and other daily products for which they are famous. Urtekram also had good relations with its suppliers and farmers, which does not happen with the new management for Urtekram.

As for the key players in the market for ketchup, rice cakes and peanut butter, Urtekram is the main supplier. It sells privately to COOP and also under the Urtekram brand. Green Valley is a second actor, but its production is both conventional and organic.

Lisbeth thought a way to decrease the organic milk surplus would be to develop quality organic cheeses. Also she thinks that Arla needs to be friendlier to the companies they buy up, possibly letting them keep their brand name.

Birgitte Eriksen of Mejeriforeningen

Birgitte Eriksen of the Danish Dairy Board (DDB) was interviewed on April 4, 2003 at 10:30 via telephone by Erin Bliven and Nick Seifert.

Birgitte's role in the DDB is in the political economic department, specifically she works with the European Union (EU) and World Trade Organization (WTO). The DDB is not directly involved in milk production, but they work with the dairies to achieve their political aims. Currently twenty-six out of the thirty-nine Danish dairies are members of the DDB. To become a member of the DDB dairies must apply and pay a base fee of 10.000 DKK and then 1.500 per one million kilograms of milk delivered or processed. The largest dairy is Arla, which holds 90% of the total milk delivery market and 85-90% of the organic milk delivery market. There are only two organic member dairies, Thise and Naturmælk. There are six conventional and organic member dairies: Arla, Them, Bornholms, Endrup,

Borup and Nørup. There are three organic dairies not on the board: Ølingegaard, Osteriet Hinge and Kristiansminde. All the dairies process their own milk and combined deliver 4,431.3 million kilograms of milk annually. The dairies mostly market their products through supermarkets. There is a smaller market at DSB kiosks to which a few dairies market their products. Some dairies sell directly to institutions such as schools or public kitchens. Most dairies do not sell directly to consumers.

The mission of the DDB is to promote the common commercial interests of the dairy industry in Denmark. DDB also promotes the dairy industry's common interest abroad in relation to the export of dairy products. Lastly, the DDB works to safeguard the interests of Danish milk producers in relation to national, international and EU policies. The main service the DDB provides to its members is to give them information. The DDB looks through any new laws or regulations and provides the dairies with information on how to follow the laws and control their milk quality. The information DDB gives to its member dairies can be very product specific and may also include veterinary standards. The DDB also provides the dairies with information about the current political situation, for example any changes the EU makes in agricultural policy.

The DDB also provides a place for member dairies to voice their concerns. Then based upon the concerns of the dairies, the DDB will relay their opinions to the Danish government. Since each dairy can voice its concerns, larger dairies such as Arla are not able to directly influence the regulations through influencing the government. However, Arla does have the most political influence over the DDB. Basically, the DDB works to promote the common interest of its member dairies. If the individual dairies have specific interests they can promote them on their own.

The organic milk surplus is of concern for the dairies and producers in Arla, who is viewed by the DDB as one dairy, even though it has several plants. Arla has too many contracts with organic milk producers and is unable to sell 60% of the organic milk produced as organic milk. This remaining 60% is mixed with conventionally produced milk and sold as such even though all organic producers in Arla are paid more for their milk than the conventional producers. The organic farmers are paid more because it is more expensive for them to produce milk than the conventional farmers. Since there are contracts for organic farmers that last several years, the market cannot quickly respond to changes in supply and demand. This is a major problem for Arla because paying the organic farmers a higher price for milk that is sold conventionally does not pay off in the end. Essentially the conventional producers in Arla are paying for the excess organic producers. The surplus is a major problem only for Arla even though the industry as a whole sees the organic milk surplus as a problem. Other dairies only have contracts for the production of the organic milk that they need, and their prices are not affected by Arla's surplus. If the surplus problem is not fixed, organic milk production will continue to stagnate because it is becoming not profitable to produce organically.

Organic milk production in Denmark began in the late 1980s, around 1986. But production was small then, and the major movement occurred around 1995-96. The demand for organic milk was huge then, it is now beginning to stabilize. Organic farmers receive an extra subsidy for converting their farm because they cannot sell their product as organic for the first two years of production during the "conversion period." The subsidy for the first two years is an extra 450 DKK per hectare per year on top of the organic subsidy of 600 DKK per hectare per year. The extra subsidy for the first two years was introduced as an economic incentive for farmers to convert to organic production.

Smaller organic dairies are forced to compete on different parameters from the large dairies. These dairies tend to develop specific cheeses, yogurts or other special products in

order to stay in business. Or the smaller dairies will produce products for other segments of the market to which the larger dairies are not supplying.

Some organic farmers are beginning to convert back to conventional production, mainly because of the surplus problem. The price premium added onto organic milk is slowly falling. Traditionally producers sign a five year contract to produce organically because of the EU regulations and because of subsidies. After five years some farmers are converting back because there is less paper work to deal with and conventional yields are higher than organic. Generally the structural development of agriculture in Denmark is becoming more efficient and encompassing larger farms. Because of this structure 10% of the farmers go out of business each year, while production stays the same. This general trend is also true for organic farmers, even though the average organic farm has more cows than the average conventional farm.

Animal health practices do not differ drastically between conventional and organic dairies because the same regulations apply to everyone. There used to be a tendency for organic cows to get fewer infections than conventional cows, but that is not the case now. Animal welfare in terms of infections is the same for conventional and organic cows. The only difference is that organic farmers are required to take their cows outside for a certain number of days per year, meaning their cows are treated better in a "softer sense."

There has been a great deal of consolidation in the conventional milk sector. This consolidation does not directly affect the farmers because the changes are taking place on a corporate level and, because when Arla buys a producer the contracts with the dairies are bought as well. Arla has a history of consolidating dairies in the conventional sector. Lately the consolidation trend has slowed because most of the dairies have already been bought. Recently only Økomælk and one other dairy were bought by Arla.

An inhibitor of innovation in the organic industry tends to be the supermarket chains, not consolidation of dairies. Retailers are often reluctant to buy the organic products and may want the dairy to supply them with a conventional counterpart. Supermarkets are very conscious of their shelf space and tend to only stock products that they know will make a profit. Yet there is innovation in the market, Thise is an example of a smaller dairy with a large product line.

The major obstacle to growth in the organic milk sector is consumption. Organic milk accounts for about 28% of the milk market, whereas other organic products account for only 5-6% of their markets. Since there is a surplus of organic milk, there is no reason for the market to grow, unless the surplus can be consumed. Exporting organic products has been difficult because different organic standards in different countries and within the EU. Also because there are common standards within the EU but are additional national standards on top of those in some countries.

Henry Franzen of Farre A/S

Henry Franzen of Farre A/S was interviewed on April 11, 2003 at 14.00 by Erin Bliven and Nick Seifert.

Farre A/S has been producing organic products for the past three and a half years. They have been certified as organic for longer than that, but have only been in the organic market for that time. Farre first got into the organic sector of the market because of the background and interests of two employees, Henry and Peder. The organic production facility is about 700 square meters and is completely new.

All of Farre's products are 100% organic and produced in a separate production facility from their conventional products. The product line is mainly salami, consisting of six or seven different kinds. Farre also produces about three different kinds of pate, frankfurters, wieners meat sausage for slicing, bacon and cooked ham. Farre buys the cuttings of meat it

needs from Friland Foods and Danish Crown and imports some from England. They also buy some 100% organic raw materials from Sweden.

Farre's organic animals are treated in a manner that adheres to the Danish organic regulations. In addition to following the regulations, the animals are fed 100% organic feed. Henry did not know how the animals are slaughtered as they are slaughtered by Danish Crown. Farre is not owned by Danish Crown, but use them to slaughter their animals. Farre does not have any social or ethical responsibilities that differ from their conventional production.

Farre's products are marketed in Fakta, Aldi, ISO, and Prima Shops. Farre began marketing their products in Fakta and COOP. Farre exports some of its products to England They chose not to market their products in private and small chain supermarkets. Their products are in high demand because they are of high quality. Henry believes that in order for Farre's products to sell you have to make the right products and people will buy them.

Henry has not seen much consolidation in the organic meat market. The big producer has largely been Danish Crown. There has not been any consolidation from foreign firms, possibly because Denmark has historically been free of foreign interest.

Henry believes the biggest challenge in the organic meat sector is making your products the highest quality possible. In order to make the best quality products, organic companies need to start with the highest quality raw materials and meat cuttings. Another challenge is consumers who have never tried their products and do not know what good organic meat is. Yet every week more people try their products and their market share increases.

Farre has also developed new products, such as sliced salami products with a very high quality standard. These products were chosen largely because Farre wanted to work in an area of the market that would give it a "new punch." Farre creates its new products with the idea that they do not want to make common conventional products in an organic matter, but make new organic products. Since young people are a major group buying organic products, when deciding what new products to make Farre tries to look at what young people want in products.

Henry would like to see as much growth in the organic meat sector as possible. Last year Farre added about 25% to their market share and would like to do that same or better this year. Denmark is very progressive with their organic products.

Mette Weinreich Hansen and Thorkild Nielsen

Our entire group interviewed Mette Weinreich Hansen and Thorkild Nielsen on Wednesday, March 26, 2003 at 10:30 am. The interview was conducted in Building 303 at DTU. Mette and Thorkild are both part of the organic foods working group at DTU. They have been working with researchers to assess the impact of organic food marketing campaigns on rural development. This study, yet to be published is funded by the European Union. Our interview focused on what Mette and Thorkild learned about the perceptions of Danish consumers, with respect to organic foods.

Mette and Thorkild's team conducted six focused groups during the summer of 2002. Three were with occasional consumers of organic food and three were with regular consumers of organic food.

When asked what they associate with the word "organic" the respondents gave a variety of answers including: environmental products, better products, no pesticides, no additives, better health, better animal welfare. However, the most common answers amongst both groups were taste and quality. While they had these higher expectations, many people in the groups were disappointed with the quality and taste of organic food. They expected

superior quality because of the price premium, but did not always have these expectations met.

The regular consumers of organic food naturally had a more positive attitude towards organic food. While they conceded that organic food might not always be of higher or equal quality, they saw it as the right thing to purchase. The occasional consumers were more critical, demanding that organics should compete with conventional food in qualities such as durability and freshness. Still, the occasional consumers still came across as more green than expected. This is likely attributable to the fact that it was difficult to recruit ordinary consumers without a strong interest in organics to participate.

The occasional consumers stressed that they wanted to be able to buy organics in supermarkets that they normally shop in. The focus groups also showed that consumers want to know more about organic products, but do not have the time or priorities to buy direct from a farm or learn about the farmer. Consumers also want better quality. They criticized the seasonality of conventional products and wanted more Danish products throughout the year. However, Mette and Thorkild questioned whether their shopping behavior would reflect these sentiments.

Some consumers had participated in box schemes – a situation where food, usually produce, is shipped directly to the consumer. They had enjoyed these because they were introduced to some Danish vegetables that they were not previously familiar with. Box schemes are also commonly marketed over the Internet, which makes them more appealing to younger crowds.

The focus groups found that regions played little role in the shopping habits of Danish consumers. There are several possible reasons for this. First, for over 100 years, there has been a coop movement in Denmark that has sough to standardize products. Second, the small size of Denmark minimizes the importance of regions. Consumers preferred Danish products to imported foods. Certain countries such as Spain and The Netherlands are disliked because of documentaries showing high pesticide usage in these countries. Local countries are generally positively looked upon. The Ø-mark, bestowed by the Danish government on organic products packaged in Denmark, is important to consumers. However, consumers often do not know the origin of a product.

The focus groups also showed distaste for large companies. They did not like the aggressive tactics often used by such companies. Consumers would prefer to purchase from smaller companies but often do not have the choice. Mette and Thorkild questioned the premium, if any, that consumers would pay for food produced by smaller companies.

The last portion of the focus group was a "time-travel" exercise that asked them to suppose that only 50% of consumers were purchasing organic food. The participants were asked to explain why this situation occurred. The respondents suggested politics, environmental issues, allergies and price.

Mette and Thorkild identified some current trends in the organic food market. There has been movement away from supermarkets towards box schemes.

On the regulatory side, many European countries, most notably Germany, are following Denmark's lead on organic food. Germany wanted to standardize their organic food industry, so they pushed for an EU label. Failing this, they implemented their own. The current Danish government is not very interested in organic foods – a stark contrast to previous administrations.

Mette and Thorkild acknowledged the current stagnation in the Danish organic food market. They did not attempt to predict the future, but identified some potential movements. One of these is a shift from raw goods such as vegetables towards convenience foods. Another issue that was discussed in the focus groups as important for the future was trust. Larger companies may have a more difficult time building trust with the consumer.

Lene G. Hansen of Friland A/S

Lene G. Hansen of Friland A/S was interviewed via email. She sent her responses to Erin Bliven on Tuesday, April 22, 2003.

Friland A/S has been an organic distributor since January 1, 1992 when the company was established. The products come from producers all over Denmark, from both large and small farms.

The key motivation Friland A/S has in distributing organic products is to sell products with regard to the environment and the welfare of animals.

Friland A/S sells its products mainly in supermarkets and some butcher shops. These retail outlets were chosen because they are where Danish consumers buy meat products. The demand in the domestic market is fairly high and slowly increasing, but not as high as conventional products. One reason for demand being less is that the organic and free range products are more expensive than the conventional products due to the higher production costs at the farms. Demand for organic meat in the export market is increasing. Lene sees organic foods playing a dominant role in Friland A/S's future.

As for future growth, Lene could only speak for organic meat. In Friland A/S's opinion, organic meat will continue to be a part of Danish and foreign meat markets.

Karsten Jeppesen and Eivind Hougaard of Arla Foods

Karsten Jeppesen of the marketing division and Eivind Hougaard of corporate communications were interviewed by Brian Landry and Nick Seifert on Tuesday, April 8th at 3:00pm at Arla's facilities in Viby.

Prior to beginning our interview questions Karsten took a bit of time to explain some of Arla's history, as well as their current, and future, marketing campaigns. In 2001 Arla launched a new product called minimælk in markets across Denmark. This was the first time that Arla launched an organic variety of a product before the conventional version. With this release the market share of organic milk jumped from around 23% to 30%; the market has currently leveled out with around 27% of all milk sold in Denmark being organic. As mentioned the market has leveled off but according to Karsten it seems as if interest in organic products is decreasing.

To help increase Arla's market share a new marketing campaign has been launched. The point of this campaign is to encourage consumers to buy organic by putting a face on, what can be seen by consumers as, Arla's imposing corporate character. They aim to accomplish this by using their milk cartons to tell a story about people involved with the production of organic milk. Although this is not a revolutionary idea since 320,000 cartons are produced a day, it is an excellent way to get their message out there; these cartons are then followed by various forms of public relations. The first person on the carton is of a farmer who produces organic milk for Arla, Hardy. The introduction of this carton with his picture on it has already generated an enormous amount of press and consumer interest. These cartons are designed by a journalist in the same manner they would create a newspaper or magazine article, and the quotes are directly from the person being portrayed. There are plans in the future to put critics of Arla on the boxes; such as a farmer from Økomælk who dislikes Arla because of their acquisition of the company.

Arla has been an organic milk producer since 1989, at which time they offered whole milk and butter on an experimental basis. The mid 90's saw a boom in the organic milk market, and they released two new products: Harmonie, and semi-skim organic milk. Sales were assisted greatly by their relationship with Coop Denmark. This relationship assisted Arla in getting organic milk moved from the specialty product shelves, to the same shelves as conventional milk. Eivind attributes part of that success of organic milk to the fact that the

price difference was only 20%. Prior to that boom, and similar to the current situation, Arla had a surplus of organic milk. Arla was the second company to begin feeding their cows 100% organic fodder, a practice that is now commonplace in the organic milk sector.

When asked about how Arla was governed Eivind started by pointing out that Thise is not owned by the farmers, rather it is privately owned. Arla is structured such that each farmer has one vote in the company. These farmers are placed into different districts depending upon their location, and those districts are in turn placed into a region. The two highest levels are the board of representatives, and the supervisory board. A great number of members for these boards are given to Denmark, because Sweden has fewer farmers.

Arla's animal welfare practices are currently in the process of changing. Arla adheres to a three tier system with the EU at the top, Denmark in the middle, and Arla's company regulations at the bottom. Some of these practices include decreasing the time "from cow to cooling" for their Ekspress milk to 24 hours, as opposed to the 48 mandated by the state. Consumers in different countries are not necessarily willing to pay more for a "better" product so these rules are valid for the domestic market, not export.

When asked about Arla's social or ethical responsibilities Eivind was quite frank: "organic is not a religion, it is just a different type of product". As it is now, Arla does not see itself as having social responsibilities. He went on to explain that their obligation was to the farmers, who are "groups with some of the lowest incomes" and that if they could just take care of the "poor farmers" this would be a significant step in the right direction. Arla is very consumer driven, and if selling a cheese product on the German market means that a German man becomes unemployed, this is not their concern. What is their concern is being good at increasing their market shares as much as possible. One of the driving forces for entering the organic market was that if it was left unattended it would invite competitors in. This is in line with a marketing point of view because Arla wants to diversify its assets.

The main target for marketing is the supermarkets. The widespread availability of organic products in supermarkets is one of the reasons that organics have been so successful. These tie in with Arla's vision of how to give consumers the good products that they want. Though the Danish market accounts for about 25% of Arla's turnover, they "cater to different markets in all markets because they want them all". Eivind did note that organic sales are generally higher in the bigger cities such as Copenhagen and Århus.

The profitability of organics is greater for the areas such as milk that have a large market share. Farmers are interested in organic products because of the bonus that Arla offers to them. Due to the surplus of organic milk that Arla currently has they are not encouraging more farmers to become organic. To discourage additional conversion to organic they are adjusting the bonus that is paid to organic farmers. This is partly because some of Arla's conventional farmers are unhappy that the extra cost of the unsold organic milk is being paid by them. Arla is currently trying to alleviate the surplus of organic milk by increasing demand for organic products. They are aiming for about 65-70% of their organic milk supply to be sold as organic this allows a buffer to react to market demands.

Eivind related the topic of consolidation to the level of professionalism used in business by different companies. The smaller, more idealistic companies often are not very professional and end up going bankrupt; a contributing factor may be the fact that they have not diversified. This is not the case with Arla. Arla's market share has grown from around 40% in the 1980's to its current 90%. This success may be attributable to organic consolidation or consolidation of the dairy industry in general.

Arla's competitive relationship with other dairies is facilitated by the various groups that they are a member of, such as the Danish Dairy Board. When they are working on a particular marketing initiative they also try to work in conjunction with other dairies such as Thise. These relationships are a balance between professionalism, and what the public sees

as acceptable. "If there is someone we want to crush, we can crush them", but this would not help Arla's public image in Denmark and the favoring of the small is beautiful mentality.

Eivind believes that there will be no additional growth in the organic milk sector unless a new product, such as minimælk, is introduced; even that may only boost the market share a small amount. Instead there is potential for market growth in areas such as yogurt, butter, and cheese. Attempts to expand the market by exporting products to other countries have mostly failed for various regional reasons.

Antitrust issues were explained this way by Eivind: Arla only has a 7% market share of dairy products within the EU. Since Denmark is part of the EU, this is not significant enough to say that Arla has a monopoly. One of the compromises that Arla has had to make because of public scrutiny and dislike of large corporations is that they still have to buy and sell dairy products at a reasonable price despite their needs or wants.

One of the things that has happened because of the surplus of organic milk is that Arla has shifted from a company that makes the best cheese in the world, to a company that produces what consumers want. This is reflected in their mission statement which is "To offer modern consumers milk-based food products that create inspiration, confidence and well-being".

Leif Jørgensen of Naturmælk

Leif Jørgensen of Naturmælk was interviewed by Erin Bliven and Nick Seifert via telephone on April 24, 2003 at 3:00 pm.

Naturmælk has been a certified organic dairy since 1994. Naturmælk is a cooperative of 21 organic farms. Their intake of organic milk is 13,000,000 liters annually, 5,000,000 liters of that is for their own production and the remaining volume is sold to other dairies for their production. Their product line is primarily 100% liquid milk but also includes some yogurts and cheeses.

Their animal health care practices adhere to the Danish organic regulations. Also, Naturmælk mandates that the calves must be kept with their mothers for the first few days of their lives. The cows are fed 100% organic feed.

Naturmælk's products are marketed primarily in Denmark, but because of their close proximity to Germany, they sell some products there. Within Denmark, their products are sold at COOP stores, DSB markets and stores at gas stations. Those markets were chosen because since Arla has 90% of the organic milk market and these markets were willing to sell Naturmælk products. Leif commented that they had to chose any markets they could. The demand is sufficient, but the company would like more. The market has become more profitable than recent years and seems to have stabilized and people are buying more milk.

Naturmælk has developed some new products and do so at the demand of consumers. Their recently developed products include semi-skimmed yogurt and some fermented products. Some of Naturmælk's consumers expressed interest in being to buy all their dairy products from Naturmælk and the company had to develop new products to keep these consumers.

Leif has seen trends toward consolidation in the organic dairy industry, particularly with Arla. Yet Naturmælk is not afraid of being taken over by Arla. Some farmers who were supplying to Økomælk prior to Arla's purchasing of the company have expressed interest in supplying milk to Naturmælk because they do not want to be part of Arla.

Naturmælk has good competitive relationships with its competitors. They have good relations with Arla and have close relationships with other dairies. One reason for their close relationships is that they supply a significant amount of milk to other dairies.

The biggest challenge facing organic dairies is getting through the next few years. Producers are not paying enough to the farmers now and farmers need to have the patience to

wait out the low profits in the market. Demand should increase in the next year or two, then the market will become more profitable.

Leif speculated that Arla's organic milk surplus will disappear soon. The surplus was caused by too many farmers converting because Arla was offering such high payments. Arla also signed contracts with its farmers guaranteeing them the high payment for a certain amount of time. Now the organic payment is being reduced, making it less appealing for farmers to convert and more appealing for them to convert back to conventional production. Once fewer farmers are producing organic milk for Arla the surplus will disappear.

Leif would like to see great growth in the organic dairy industry. The key to growth will be people seeing the costs of not farming organic and then farmers will begin to convert.

Anders Klöcker of the Danish Directorate for Food, Fisheries and Agri-Business

Anders Klöcker of the Danish Directorate for Food, Fisheries and Agri-Business was interviewed on Wednesday, April 23, 2003 by Erin Bliven and Nick Seifert.

The Danish Directorate for Food, Fisheries and Agri Business ("the Directorate") works to transfer money from the European Union to Danish farmers, both conventional and organic. The Directorate is also the secretariat for the Organic Food Council, which until 1986 was called the Organic Agricultural Council. Lastly, the Directorate is the secretariat for the Organic Task Force which was established to orchestrate various aspects of organic policymaking. Anders deals mostly with policy.

We then asked Anders about how the Directorate is involved with organic pig production. The main promoter of organic pig production is the subsidy system administered by the Directorate. The scheme pays farmers to convert and includes five years of payments during the initial conversion and a minor payment after conversion to maintain the organic operation. In previous years the subsidies varied for different industries, so that pig farmers would get a larger subsidy than other farmers because conversion to pig farming is more difficult. Anders was not sure if the subsidies were still varied.

Growth in the organic market is very difficult for many reasons. Many consumers do not associate pig meat with organic ideals because of the way pigs are raised. The high price premiums are also a deterrent for consumers because the products are too expensive. The lack of consumer interest makes marketing difficult because consumers are not interested in the products.

The main driving force in making the market grow would be greater awareness of problems with the conventional pig production industry. Yet Anders does not see this as something that is happening now. Anders does not expect high growth rates in the organic pig product sector unless the barriers to exporting the products are solved. The main barrier to export is regulations. There is one set of regulations for all of the European Union countries. If a member country uses a state run agency to regulate the organic industry, then that country's regulations must follow the EU regulations. Yet, if a member country regulates through a private body the regulations can be stricter than the EU regulations. The differing regulations make export very difficult, because the products may not adhere to the regulations in a different country. One strategy to solve the export problem is promote the EU organic seal, so that all certified products in all member countries will have one logo on their products.

We then shifted the conversation to organic dairies. Promotion of organic dairies is in the form of subsidies and research. The Directorate also subsidizes advertising campaigns for the promotion of new products. There was a general campaign for milk last year, and there will be another one this year.

Growth in the organic milk market will also be difficult. Again, unless problems in the conventional production sector are found, general consumers are not going to be convinced to switch to organic consumption. The organic milk surplus, just as the marketing problems in the pig sector, could be solved if the milk could be easily exported.

The Directorate promotes the development of new products through special subsidies for an innovative product, process or technique. The subsidy can be as much as 50% of the funds needed to develop the product. If the product is commercially successful then the subsidy must be paid back, otherwise it does not. Last year the Directorate awarded about 200 million DKK to special projects. Some of the money is earmarked for organic development. Roughly 10-15% of that money was used for organic development projects last year. Recently the Directorate has had problems using all the money set aside for organic products because of a decrease in innovation brought about by decrease in market growth. New products need to be developed to entice occasional consumers to frequently buy organics. Arla's spreadable butter was a product recently developed with funds through this subsidy.

Attdo Klockmann of SuperBrugsen

Attdo Klockman, store manager of the SuperBrugsen shop at Ndr. Frihavnsgade 24, 2100 Kobenhavn Ø was interviewed on Friday, April 25, 2003 by Erin Bliven, Brian Landry and Nick Seifert.

The SuperBrugsen shop we were at is one of the seventy Green Shops which is why it was of particular interest for us to speak with the manager. The store was selected to be a Green Shop because of the demographics of the area. The SuperBrugsen consumers in Østerport tend to be young people with money or people with children, both of whom are interested in buying organic foods. Attdo is responsible for deciding which organic foods will be sold in the store. The items most in demand are cereals and flour. The customers of SuperBrugsen are always demanding more organic products, but when the products are actually in the store, customers often do not buy them.

Morten Krohn of Øllingegaard Dairy

Brian Landry interviewed Morten Krohn on Wednesday, April 2, 2003. The interview took place at the Øllingegaard Dairy in Skævinge of which he is the production manager and former owner. He began as a dairy farmer in 1988 with 100 cows where the dairy now is. He originally sold his organic milk to MD Foods, the predecessor to Arla, for processing, packaging and distribution.

The events of 1995 allowed him to start his own dairy. In March 1995, a newspaper article was published in Denmark documenting the pollution of drinking water by pesticides. A representative from company that produced the pesticide went on television to allay public concern but only inflamed the situation. In the 24 hours following that television program, sales of organic milk rose 100%. Then in June 1995, another article was published reporting problems with the semen of men from Western nations. These problems were associated with pesticides. Organic milk sales again doubled following that story.

This created major organic milk shortages. Arla, which had a monopoly on milk sales in the Danish supermarkets, could not meet the demand. As a result, supermarkets would sell out of organic milk at 10:00 AM. This provided an opportunity for Mr. Krohn. He approached the director of ISO Supermarkets and offered to build a dairy on his farm if ISO would grant him a contract. They agreed and the dairy was built.

Business increased throughout the late 1990's and in 1999, the cows were sold and attention was focused on the dairy operation. When the company grew too large for him to manage, he sold it to a nonprofit foundation.

Morten Krohn is a true idealist and his company reflects his beliefs. He said, "I'm in the middle of changing the world," and similar statements several times during our interview. He identified organic foods as an outgrowth of the hippie movement and cited the fact that in 1995 the Danish government adopted the self-regulations created by the first organic farmers in 1983.

Since Øllingagaard's inception, their point of differentiation has been they supply of the freshest milk possible. Milk is collected from dairy farmers in the afternoon and processing begins at 8:30 p.m. Processing and delivery follows soon thereafter. While there are added social and economic costs associated with having a night crew, it allows their milk to be stamped with the next day's date, a distinction that they share with no other company.

Krohn says that while consumers may buy milk at a premium price for a short time because of the great story behind Øllingagaard, eventually they will return to the lower product unless the product with the higher cost has higher quality. Øllingagaard's small size allows them to achieve a taste that some consumers associate with the milk they would get when visiting their grandparent's farm.

Still, Øllingagaard faces intense competition. Mr. Krohn is clearly concerned about Arla and this is reflected in the "belt and suspenders" nature of his dairy. He is very concerned that any error that compromises his operations will spell his failure. For this reason, he uses old packaging machines that do not rely on computers because is able to fix anything that may break at 3:00 AM when a service technician is unavailable.

It appears that his concern about Arla is well grounded as his experience with milk cases exhibits. When Øllingagaard began, it decided to use crimson plastic milk cases. When Mr. Krohn called the company that produced these cases, he was told that Carlsberg used the same cases and that he could purchase them secondhand when they were returned to the plastic company. They did this until a few years ago when Arla purchased the plastic company and discontinued production of the cases. Now, Øllingagaard must rent green cases bearing the Arla logo.

Krohn is also very concerned about falling agricultural prices. He abhors the current agricultural situation in the United States. Because of this, Øllingagaard pays the highest prices to dairy farmers. Competition continues to drive down prices. Krohn has attempted to work with Thiese and Naturmælk to maintain sustainable milk prices and to guard against Arla's expansion, but these companies are managed with profit in mind.

Krohn believes that quality is the key to Øllingagaard's future success. He had a negative attitude towards innovation, in that it is often at odds with quality. For example, he believes that the best chocolate milk can be made at home with high quality milk and chocolate. Øllingagaard has created new products including Kålskål, a lemon and sugar buttermilk, but they do so only to stay competitive.

In conclusion, Øllingagaard is an idealistic dairy producer that holds a niche in the highly competitive Danish dairy market. They are able to remain competitive through their reputation for quality and freshness, their high level of service to buyers and their relationship with ISO, an upscale supermarket in Copenhagen.

Johannes Michelsen of the University of Southern Denmark

Johannes Michelsen, Associate Professor of Political Science and Public Management at the University of Southern Denmark, was interviewed on Tuesday, March 25th at 10:00 a.m. by Erin Bliven, Brian Landry and Nick Seifert. Professor Michelsen has been researching organic food policy and politics in Europe since 1987 and is now expanding the

types of food that he studies. He is one of the editors of Organic Farming in Europe a multivolume series that examines many aspects of the organic food market.

The interview began with a discussion of the characteristics that make the Danish organic food market unique. Denmark is a leader in the organic food market because of the way that its market and sales are organized. A restructuring occurred after the market stagnation in 1992, causing the pronounced growth of the 1990's. This structure was typified by a high amount of cooperation amongst all actors in the organic food market. As the market matured and again stagnated, some of this cooperation has been lost. In order to spur future growth, Prof. Michelsen sees the need for a "professionalizing" of the food processing industry. By this, he means that there should be a concentration on a few distribution channels.

The interview then shifted to a discussion of subsidies. Professor Michelsen sent us a study that he completed on organic food subsidies in 18 European countries. Volume 9 of Organic Farming in Europe also provides more information about this. Prof. Michelsen believes that subsidies can only be effective if they work in concert with other economic facts. In particular, farmers must be interested and able to get information about converting and there must be a market for the products if subsidies are to be effective.

Professor Michelsen has found that the most systematic, positive effect on the organic food market came from programs that provided a uniform certification and labeling system. This provides a sustained effect, as opposed to the "one shot" of assistance that subsidies provide. He also believes that information campaigns may be effective, although he has not been able to isolate their effect in his research.

While certification programs can encourage market growth, Prof. Michelsen sees a danger in regulations becoming politicized. It would be better for the organic food industry to maintain its own identity. Much of the regulation is being taken over by the European Union (EU). This will allow for a uniform standard that will make international trade easier. However, Prof. Michelsen believes that the EU standards should allow for regional flexibility.

Prof. Michelsen made the point that in general organic food markets might have some difficulties in developing in situations where industry emphasized the environmental or health benefits or organic food because it confronts mainstream agriculture food quality; in Denmark the market developed in response to consumer demand. He believes that the industry needs to maintain this market-oriented stance in Denmark and adapt to it in other countries.

He sees large barriers to small businesses entering the food market because of the role that supermarkets play. Small food producers need to make strategic alliances in order to be successful.

The interview shifted to Arla before concluding. Arla is a farmer owned cooperative as are most of the major food processing groups in Denmark. Arla was an early entrant into the organic food market. There has historically been some animosity between organic farmers and Arla.

Prof. Michelsen believes that the organic food market will have little growth for the next two years. After this period of restructuring, growth will begin again. He sees major growth potential in vegetables. Dairy and cereals already have a high market share. Processing improvements for organic meat may cause improvements in their marketability.

Tom Krog Nielsen of Organic Denmark

Tom Krog Nielsen, market development manager for Organic Denmark (OD) was interviewed on Wednesday, April 09, 2003 at 13.00 by Erin Bliven, Brian Landry and Nick Seifert.

Tom's role in OD is as head of the market department. His official title is market development manager and he has been in this position since February of last year. He was first employed by OD in 1999 to establish export promotion activities. Under that position he developed a structure and guidelines for companies wishing to export their products.

The general goal of OD is to convert all Danish conventional agriculture to organic, however Tom realizes that this goal may not realistic. Tom was not sure when OD was first active in Denmark. He knows that the farming organization was established before the consumer organization. He guessed that the farming organization was established in 1987 and the consumer organization in the early 1990s. OD is financed partially through membership fees, which covers about 1/3 of its financial needs. The rest of its funds come from government funds.

OD has been the only organization in Denmark active in organic farming. They are a leading collaborator with the Danish government for setting of regulations. In the beginning they were two different organizations, which merged into OD in March of last year. One organization worked with farmers to motivate them to convert to organic farming, and working with authorities to set regulations. The other association dealt with basic information on organic production aimed at consumers, retail trade and companies.

OD has been very active in the formulation of official regulations and policies on organic farming in Demark, specifically on both Action Plans for organic farming. As for OD's work in the consumer sector, it has been analyzing profiles of consumers in Denmark who purchase organic products. Specifically, the study has been looking at consumer attitudes including why they purchase organics, what products they purchase and the barriers in getting products to consumers. Interviews of actors in the retail sector were also conducting, investigating their strategies for selling organic products and the barriers to expanding the market.

OD is organized into many committees each with a particular focus. There is one large committee of seventeen members, which is responsible for the policies, and professional development of the organization as well as the development of organic standards, advisory services and controls. The members of this committee must be members of OD and be appointed from the smaller committee on which they serve.

Parallel to the large committee is a market committee consisting of two members of the large committee and one member from the committee representing Danish companies. This committee works to control the market department of OD.

Also parallel to the large committee is an agricultural committee, which works with the agricultural department of OD. This committee works with external companies, does consulting work with organic farms.

Beneath the large, marketing and agricultural committees are several small, focused committees. There is a consumer committee, which was formed last year. Currently there are 1,000 consumer members. Tom would like to see the membership increase to 2,000 consumer members. As members of this group the consumers receive a magazine quarterly about organic production. The committee focuses on what consumers want for organic products. It is also trying to reach an agreement with FDB about co-promoting consumers to become members of both organizations.

There is also a committee for the fifty companies that are members of OD. This committee meets every three months to discuss marketing activities and the problems they experience. Most of the member companies are 100% organic, and few do parallel processing of both conventional and organic products.

Lastly there are many specialized food committees, one each for egg and poultry, fruit, dairy and vegetables, beef, plants, pig meat and milk.

On June 1 of this year a new department will be started dealing with information and press relations. For the last 18 months to a year there has been a great deal of industry wide negative press for organic products. The negative press investigates why organic products are more expensive, if they are really healthier and why people trust the organic seal. This department will try to actively stimulate the press to write articles favorable to organic products. There have been a few scandals involving organic products in the past. About two years ago a conventional packer was caught selling conventional eggs as organic. There have also been control problems, specifically with a German corn seed contaminated with the pesticide nitro fin being exported into Denmark. The negative press combined with scandals involving organic production has made it difficult for OD to promote organic products.

Some highly paranoid people believe that the negative press is coming from the larger agricultural associations trying to undermine organic production. Tom does not feel this way. He realizes that a threat to organic farming is that conventional farming in Denmark is becoming more green. Conventional companies may be being forced to be more environmentally conscious through the organic movement being popular and pushing its regulations.

OD's more obvious success in lobbying for legislation was its influence in both action plans. Also last year a new official export strategy for organic products focusing on the United Kingdom, United States, Germany and Sweden was passed largely because of the work of OD.

OD promotes organic products mostly through retail trade promotions and special campaigns. A new Ø-mark campaign is beginning on May 30th, 2003. There is also a charcuterie campaign, which began last week and is continuing until week 34. This campaign is working to increase the market share for organic meats above its current less than 1% share. Friland Foods, Hanegal and Farre are the organic companies participating in the campaign. OD also talked with actors in the retail sector to see if they had a strategic interest in promoting organic meats. In the promotion's first week it was successful, largely because of the help of the supermarket chains through advertising in their weekly flyers. There will be a dairy campaign in 2004, which OD will be able to launch with the financial help of the Danish Dairy Board.

OD has been very focused on small farmers and producers, in that the general attitude of its members is that, "small is beautiful and big is bad." The attitude of the market department is that all companies, regardless of size, should have some organic production. Many farmers share the, "small is beautiful, big is bad" opinion. These farmers believe that Arla is bad for the market. Currently Arla is doing a major organic dairy promotion campaign where they are printing stories about their organic production on the milk packages. Arla also has plans to market some new products in the fall. Despite Arla's product development, there will always be uniqueness in small companies that large companies can never have.

A major obstacle for small producers in marketing their products is that the most profitable market is the supermarkets, where roughly 80% of all organic purchases are made. To market their products in supermarkets, the small producers have to meet very high standards and be able to supply enough to meet the store's large demand. Also, in order to market products in a supermarket a large amount of money must go into advertising, small companies do not have the money for these expensive advertisements. An additional problem is that the retail sector and organic producers have different expectations of each other.

Retail sector and production companies have different views on who is helping whom. Retailers see their role as a way for producers to get their products out, whereas

companies think the retailers should be actively helping them sell their products. Companies need to play by the rules supermarkets lay down.

Tom has seen consolidation specifically in the dairy sector with Arla buying dairies. He is not sure what Arla's strategy for marketing the Økomælk brand is. He hopes that the brand name will be kept instead of using the Arla brand name. Consumers are generally skeptical of Arla, and organic consumers would rather buy from a small dairy, like Thise, than from Arla.

Tom sees a need for some organic farms to convert back to conventional production because there is no short-term fix for the overproduction problem. In the beginning there was a great deal of political focus on having conventional farmers convert to organic production. The first farmers to convert did so for ideological reasons, and the later farms were motivated by the profits in the organic market. There is less profit motivation now because the market is not as profitable as is in the mid 1990s. The big boom in conversion of organic farms eventually created an overproduction problem, specifically in the dairy sector.

Tom viewed the organic milk surplus as an unacceptable situation and a huge problem for Arla. In his mind there is no short-term solution to the problem. Currently Arla is not allowing additional farmers to supply to them. One possible way to reduce the surplus is to make new products like yogurt and cheese, or to run campaigns advertising non-liquid milk products.

Tom has not seen any major takeovers of the organic market by conventional companies in Denmark, yet these takeovers have happened in the United States and United Kingdom. In Denmark many companies have entered the market reactively based upon its profitability not proactively. He does not think many conventional companies will be persuaded into the market because it is stagnating and not very profitable anymore.

Kjarten Poulsen of Økomælk

Kjarten Poulsen from Økomælk was interviewed on Wednesday, April 2nd at 14:00 by Brian Landry and Nick Seifert. The interview began with a brief discussion of Økomælk's background and history. Though some its farmers have been around since 1991, Økomælk has been a company since 1995. They have been certified organic for the entirety of that time. The main product sold is drinking milk, with sour products and cheddar cheese being secondary product categories. In all, Økomælk sells about 25,000,000 liters of organic milk each year, or about 10-15 tons of organic drinking milk per day. All but one of the products produced by this company are 100% organic and bear the Ø-mark. The exception is a colored cheddar cheese, sold in the Middle East, which is unable to qualify as organic due to Danish regulations.

Økomælk's largest market is predominantly supermarkets, with smaller organic retailers being secondary. Supermarkets have been chosen because of the volume of product that can be sold to them. Their current supply system works in such a way that the order for milk comes during the day and the order is shipped during the night and is at the market the next day. The demand is such that all of the milk that is produced as organic is sold as organic. The extra cost that consumers see at the supermarket is due to the costs associated with the organic farming process. This is illustrated by the fact that the cost of processing of organic milk is the same as the cost of producing conventional milk.

Until January 1, 2003 Økomælk's biggest competitor was Arla, at which time Arla purchased the company. This means that Økomælk's biggest competitors are currently Thise and Naturmælk. Though Økomælk is owned by Arla, no changes have been made to the structure of the company. This has meant that Økomælk has been able to continue business as usual after the merger, benefiting both companies in the long run.

Getting into the dairy sector is difficult in Denmark because 3 companies hold about 90% of the market. This difficulty is particularly acute for smaller organic producers. A method that has been successful for larger companies has been to create a close partnership with a supermarket chain, such as Øllingegaard's relationship with ISO. Another area for potential entry into the market could come by partnering with caterers, because most caterers have their own brand. Genetically modified organisms are also a problem for smaller organic farmers because of the lack of standardization of regulations with respect to conventional farmers.

One of the main reasons for the organic movement in Denmark was that for a time Danes were afraid to drink the groundwater. This means that the main social or ethical responsibility for the organic movement is to maintain or increase the quality of drinking water in Denmark. The second responsibility is to keep the soil clean. These responsibilities fall mainly on the farmers and less on the producers. Though Kjarten expressed the sentiment that these considerations affect what they produce but not how; the how part of that question relates more to the health of products, e.g. the fact that their products are not homogenized. The organic movement will benefit when prices fall to a level where organic products are comparably priced to conventional products.

Mogens Poulsen of Thise Mejeri

Mogens Poulsen, sales manager for Thise Mejeri was interviewed on April 7, 2003 at 14.00 by Erin Bliven, Brian Landry and Nick Seifert.

Thise has been a certified organic dairy since 1988 when it was founded. It was founded within a conventional dairy that started in 1857. The dairy has been expanding since 1988 and its now a cooperative owned by 45 organic farmers who supply the milk. Thise manufactures approximately 20,000,000 liters of organic milk per year in conjunction with two other production facilities in Jutland. Thise is the main dairy, which buys the milk from the other two facilities. One of the dairies specializes in blue molded cheeses, the other in white molded cheeses. Overall Thise has 70 different dairy products, which are an essential part of their identity. Developing new products is integral to the company. Recently they have developed twelve new products.

Since Thise is a cooperative, the dairy is owned by the farmers. There is a board for the company, made up of seven farmers. Once a year there is a general assembly at which the status of the company is discussed and there are elections of three or 4 of the board members. Each board member serves for a two-year term. Thise pays competitive prices to their farmers, until two years ago Thise was paying more than Arla, but in the past two years they have been paying slightly less. Yet it is difficult to compare the two companies because Thise pays its farmers based upon market conditions, whereas Arla has contracts with its farmers. Arla is a huge company and can pay the political price, when Thise can only pay the market price.

Thise has a large product line including products from two other dairies. All the products are 100% organic from cows that are fed 100% organic feed. Thise decided to feed their cows 100% organic grass, whey and oats in the summer and grains, hay and corn silage in the winter because of what they stand for not because it was mandated by the European Union (EU). Gedsted, one of the dairies produces three type of bleu cheeses: Danish bleu, Jutland bleu and a low fat bleu, all of which are offered in varying strengths. Grindsted, the other member dairy, produces havarti, esrom, asmoe and white molded cheeses like Brie. The Thise factory produces the other products including all the liquid milk products. Thise is world famous for its assumption that milk from different cows breeds is different, which led to them producing jersey milk. Other products in Thise's line include butter both salted and unsalted, organic spreadables, spiced butter, parsley butter, chili and dried tomato butter,

strawberry and lemon butter milk, yogurts with different fat contents, Greek style yogurt, 9%, 18% and 30% sour cream, asido, Danish Ymer and Danbo with different fat contents.

Thise adheres to the EU regulations for organic cow welfare. All of the cows and calves graze on grass at least 150 days per year. In the winter the cows and calves are in stables where they are not in a fixed position. In older farms where the stables are designed so that the cows are tied up, they are untied and allowed to roam for some time each day. Also, the cows are provided with clean straw always and natural light when possible. Legislation mandates that calves and their mothers must be kept together after the calf is born, and Thise obeys that rule. All the farmers within Thise are mainly milk producers and some produce a small amount of meat. The farmers are not allowed to sell their calves for export into foreign meat markets. Lastly, if a cow is sick, antibiotics can be used, but the milk cannot be sold as organic for three times the normal quarantine period for conventional cows, for example the quarantine period for conventional cows is four days, therefore an organic cow treated with antibiotics cannot produce milk for sale as organic for twelve days.

Thise pays its farmers the buying price for the milk. The constitution of Thise says that they have to make an economic conservation each year, the rest of the profits made are paid to the farmers. One main social consideration of Thise is "organic production without compromise." For example, when they are looking for raw materials such as sugar or fruit, they try to find the best quality and price. They purchase most of their raw materials through Sol Sjulet or "The Sun Wheel", which has very high ethical standards for its organic products and believes in biodynamic farming. Thise has not been looking at the prices other farmers pay for their raw materials, and only knows about the prices it pays.

Thise markets 80% of its products in Denmark, the rest are sold in Germany, the United Kingdom and Sweden. They are currently negotiating with Whole Foods in the United States and a supermarket chain in Manhattan. Most of their products are sold to COOP Denmark, where half of Thise's profits come from. Within COOP Denmark, Thise has the best relationship with Irma. Thise and Irma's cooperation began when Thise offered Irma a price for organic milk that it could not refuse. Thise was also able to package the milk with an Irma label, making their product further desirable to Irma. Thise considers Irma to be a perfect match because they are a small chain of 65 stores and Thise can supply them with the milk they need.

These markets were chosen largely by incidence. Organic products are part of COOP Denmark's philosophy, and because of that it was the first supermarket chain to stock them. COOP Denmark has the largest market share of organic products within Denmark, and has two main supplies, Arla and Thise. Arla and Thise are in competition, but their product lines compliment each other. Thise produces mainly niche and specialty products, whereas Arla produces the mainstream products. Consumers and journalists tend to think that Thise dislikes Arla, but such is not the case. Thise does not have a working relationship with Arla, but they can communicate with each other in a civilized manner. Politically it is important for Arla to have a competitor like Thise so that they do not have a monopoly over the dairy industry. This competitive relationship helps Thise because they get sympathy from consumers who then purchase their products. Also, Thise's and Irma's ambitions are similar in that Irma is always responsive to new products that Thise wants to develop and sell. Lastly, Thise has helped to strengthen Irma's market share in Copenhagen and Irma helps Thise by providing them with a venue to sell their products.

Thise also sells to local markets. They have a small shop at the dairy and also sell to stores in the Skive area, mainly Kvickly. However, most of their products go to Copenhagen where most of the organic products are purchased.

There is a large demand in all markets to which Thise supplies. The demand had been growing for the past fifteen years, but has begun to slow. Currently, it is only growing at

about 2% more than it did last year. To make up for the lack of growth in demand, Thise is always looking for new markets, recently in Norway and the United States.

The market is more break-even than largely profitable. Competition has been tough in the past few years, even though Thise is producing niche products. Stiffer competition caused Thise to look into foreign markets since the competition makes them vulnerable and they feel the need to diversify.

Developing minimælk has caused Thise's market to grow. Thise introduced Jersey minimælk 0.5% two weeks before Arla introduced their minimælk. Minimælk has been Thise's most successful product. Even though Arla introduced a competitive product at the same time, Thise's sales of minimælk was not harmed at all, even when conventional minimælk was introduced. Instead the market share of organic milk grew after minimælk was introduced. Currently 26% of all milk that is produced and sold in Denmark is organic.

The biggest innovation Thise has done is the separation of milk from different breeds of cows. Half a year ago all dairies in Nordic countries were in competition for new products. Out of five nominated products, three from Arla and one from another large dairy, Thise's concept of separating milk by cow breed and that, "milk just ain't milk" won the prize for best new product.

In order to keep up with competition, Thise is exploring new markets in Spain, Greece and California. Yet overall within Denmark, Thise is a well recognized dairy. Recently a market analysis was done of a significant number of Danish consumers, and 11% thought of Thise dairy when prompted to name a Danish dairy. Since Thise is so small, only employing 55 people and being a cooperative of 45 dairies, the fact that 11% of the population knows who they are is incredible. Then when the surveyors mentioned Thise, 44% of the consumers knew of its existence. Within the past two years COOP and other markets have been more critical of Thise's new products. For example, Thise is going to be producing a Greek style organic yogurt. COOP is buying the same style yogurt in non-organic form from a German company instead of buying from Thise.

There has been a trend of consolidation to some extent, from both Arla and Thise. Arla recently bought Økomælk. Thise is cooperating with two other Jutland cheese producing companies. Thise is also cooperating with Kirk, in which Thise distributes and sells Kirk's products in Germany. This consolidation into cooperating with other dairies has helped Thise. Yet they remain critical of who they want to cooperate with because they are still in competition with other dairies. For example, Thise does not produce feta cheese, but one of the dairies it cooperates with does, a cooperation that is beneficial to both dairies because they are not in competition. Thise will also only cooperate with dairies that it is similar to in ethical practices.

Thise seems to have a high reputation within Denmark as an alternative to buying products from Arla. Yet Thise must compete with Arla on different levels, such as with niche and innovative products. Typically Arla does not tend to copy Thise's innovative products.

The biggest challenges organic farmers face is that milk producers in general in Denmark are undergoing very hard times now. There has been a trend towards more consolidation, in which small farms are being bought by larger farms. The surviving farms are investing money in stables and land and other things. If Thise is unable to pay its farmers competitive prices, the farmers will stop converting. Also milk production is much more industrialized now than it was ten years ago.

As for growth in the organic sector, it is difficult to predict. The development of the organic market can be compared to a set of stairs, always climbing up. Now instead of climbing up, the market is at more of a platform, not growing or shrinking. In the past eight or ten years whenever there was an environmental catastrophe, such as Chernobyl, lack of oxygen in the oceans, or pesticides in the drinking water the organic market would grow.

Such is no longer the case, since these problems still exist, but the market share is not growing. One thing that would help the market now is if it was proven that organic products are better for one's health. Thise does not make that claim because their products could still be full of fat, and if someone is eating too much organic butter, that person is not necessarily healthy because the butter is organic.

Niels Tvedgaard

Niels Tvedgaard is both a farmer and a researcher. During the spring, summer and early fall, he works on his organic farm in Randers, Denmark. During the rest of the year, he works at the Danish Research Institute of Food Economics in Copenhagen. His research areas include organic farming at the farm level, practical applications of research, subsidies and food prices, impact of organic regulations on production, conversion periods, and new systems for organic pig production. He has worked in both professions for approximately four years.

The interview began with a discussion of conversion plans for organic pig production. It is very difficult for conventional pig farmers to convert to organic pig production because of the scales that each operate on. Conventional pig farming is conducive to large scale operations, while organic pig farming is better suited to smaller farms because the animals need more room. Conventional pig farmers typically invest in farms that do not allow adequate room for organic pigs and therefore must make a great investment to convert to organic farming. He found that organic pig production was not very profitable. These findings were based on the high organic grain prices that Denmark was experiencing several years ago, and may no longer be valid.

His research into organic cow production has found that organic cows are most economical with a low stocking rate. The average rate on Danish farms is one cow per hectare. The ideal rate would be about half of this. In this manner, organic cow farming is the opposite of conventional which operates most economically with high stocking rates. He recommends cooperation between cow farmers with plant farmers, which would allow greater land areas for cows, while providing nutrients for plant farmers.

Niels identified market uncertainty as the largest barrier to conversion to organic pig farming. The United Kingdom was formerly the largest consumer of Danish organic pork. However, the UK has mounted a campaign to produce more of its organic food locally. As a result, farmers can no longer predict ten years ahead, as is necessary for investments. Prices are quite high for organic pig products because the industry is currently operating at an inefficient level. Prices would fall closer to conventional prices if sales reached a critical mass, but it is unlikely that this will occur. Organic poultry and meat face a similar problem.

With respect to conversion to organic dairy farming, Arla's unwillingness to accept new farmers is the biggest barrier. While some smaller dairies may accept a few new farmers, their effect on the market is small. Beyond this, there are few barriers to conversion, as a switch requires minimal investment. Export is likely to continue to be difficult as neighboring countries implement plans to increase organic dairy production. Niels predicts that there will eventually be a surplus of organic milk throughout Europe.

Niels believes that price premiums plus subsidies have led to an oversupply of organic food. He thinks that subsidies are necessary to grow sales to a stable point; however, they should be phased out after that. Despite the new government, organic food subsidies have not changed much. Because they are administered in part by the EU, subsidies are slow to change and thus cannot respond quickly to changes in the market.

As regulations shift to the European Union, there have been many compromises that do not always suit Danish agriculture well. For example, because of Denmark's climate, it is

not feasible to keep organic pigs outside during the winter. However, EU regulations do not reflect this. In some case, Denmark has enacted regulations tougher than the EU. He sees regulations as a positive force, but recognizes the burdens that additional paperwork places on farmers. He thinks that and EU organic label would be good if it opened up the European markets.

He believes that organic food regulations are unlikely to change drastically over the next few years because the market is not strong and would not be able to absorb changes. He identified forces advocating changes in both directions. On the "left wing" are farmers who believe among other things that pigs should be out all of the time and that imports of conventional manure should be prohibited. On the "right wing" are farmers who believe that production should be made more practical.

Niels has seen some consolidation in the organic food market. Arla is quite aggressive in taking over dairies. Danish Crown also recently purchased Friland. He has not seen much other consolidation in other organic sectors. He attributes this consolidation to a tough market for small competitors. He is not sure how this has affected consumers, but he doesn't believe that it has translated to higher prices. However, it is bad for farmers as it drives their prices down.

He doesn't see much market growth in organic food over the next few years, and he believes that some areas may see declines, causing some farmers to convert back to conventional farming. When asked about the possibility of box schemes for organic meat, he thought there might be limited potential, but remains skeptical about its chances.

Jens Chr. Weidanz of Fødevaredirecktortet

Jens Chr. Weidanz of the Århus Regional Veterinary and Food Administration (FDIR) was interviewed on Tuesday, April 08, 2003 at 10:00 by Erin Bliven, Brian Landry and Nick Seifert.

Jens's role at FDIR is in control of all processed food products, including organic products. He does not have any control over farmers, which is controlled by the Plantedirektorat.

Jens did not have any data on the number of organic pig farms in Demark. A few years ago there was a prognosis saying there would be 30,000 farms in Denmark, 10,000 grain farms, 10,000 milk and beef farms and 10,000 pig farms. He didn't know if the market got to that point, but it could be near there. There are many small slaughterhouses for organic products, 15 of which are in Århus. There are more small local slaughterhouses than big slaughterhouses.

Organic production is regulated on many levels. The FDIR's main method of control is through paperwork. The Plantedirektorat makes a list of organic companies which is published on the Internet and regularly updated. This list allows the FDIR to have easy access to all the organic companies in Denmark. When slaughtering animals, the animals must come to the slaughterhouse with a certificate certifying that they are organic. Further controlling where the animals come from is their tag number, which all Danish farm animals have. The tag number corresponds to the farm which the animal came from, therefore organic animals will have certain numbers. Once the animals are slaughtered the Danish organic seal is stamped directly onto the meat, and once the meat is processed, the organic seal is stamped on the packaging.

FDIR also controls organic production by unannounced visits to the production facility or restaurants serving organic food. These visits require a great deal of paperwork and testing of products for banned pesticides and additives. Since the FDIR does not have the manpower or time to test all the products in all the companies, it selects one or two products to investigate. If all the paperwork about those products, including organic plans is

existent and in compliance with the regulations, then the organic production facility passes the inspection. If documents are missing, the firm is further investigated. Organic producers welcome the unannounced visits because so much of their market is based upon consumer trust, and they like to be able to pass these inspections without being warned of them in advance. If the organic firm chooses to export its products, then they need a certificate issued by the FDIR stating that they are under its control. With this certificate, when Danish organic products enter the European Union's market, they are trusted to be organic.

To keep conventional and organic products separate within one slaughterhouse, the animals must be slaughtered at different times in the day, for example organics in the morning and conventional animals after them. If conventional animals are slaughtered before organic animals, all machines and surfaces must be sterilized with a FDIR approved sterilizing agent.

Imports are controlled mostly by the FDIR issuing permits for companies that are allowed to import. The permits only last one year, then the company must reapply if they want to continue importing to Denmark. When applying for a permit, the company must inform the FDIR who is controlling their production and who certifies them as organic. If a private organization does the certifying, the organization must be approved by the European Commission for import. Every time a shipment is imported, it must be accompanied by papers certifying that the company it is coming from has a permit to import. The imported products themselves are controlled by the FDIR by taking samples of the products and testing them for pesticides.

FDIR caught the import of non-organic grain as organic grain through these testing and control practices. There was an organic firm in Denmark that received organic grain from England. FDIR tested the grain and found a pesticide in it. They then questioned the English authorities about the use of that pesticide, and found that it was used and the level in the grain was a normal level. Through further investigations, FDIR found that the grain was actually produced in Finland and moved via a Dutch containership to England, where the grain was used for cereal. FDIR then investigated the Finnish market to see if this pesticide was in use, and found that it has been banned for the past ten years, therefore the grain could not really be produced in Finland. Also, the Dutch containers had not contained any grain prior to exporting what was thought to be Finnish grain. It was determined that the grain was actually English, conventional corn. As a result of this investigation, the Danish organic company chose to no longer import grain from that company.

The FDIR also controls organic restaurants. The Danish government has a policy stating that they want to boost the organic market, including restaurants. It is very difficult for restaurants to be solely organic because not all the products they need can be purchased as organic. Therefore organic restaurants are not controlled with the same practices are organic producers. Establishments that sell only pre-packaged organic foods do not need to be certified, yet companies that are packaging organic food do need to be certified. A restaurant that is totally organic needs an organic report telling the details of their organic purchases and their methods of keeping the restaurant organic. To help the organic restaurant business, some lenient rules have been made. The restaurants are allowed to have a small part of their menu be organic, such as only organic coffee, breakfast or meats. These rules enable the restaurants to start an organic business, but not have to be 100% organic.

If a producer is selling both conventional and organic foods, it needs to keep a record of what is being bought and sold and if the products are conventional or organic. The firm must then sign the paperwork, further attesting to its accuracy. Every year a few firms are selected to investigate for cross control. In these investigations, figures from one firm and the firm they are buying from or selling to are compared to see if they match. These investigations take many people and a great deal of paperwork, which is why all firms are not

investigated every year. Yet they provide a way for FDIR to ensure that conventional products are not being sold as organic. It is very rare to find firms that are cheating with their organic production. Sometimes paperwork is missing or not good enough, but normally not because the firm is trying to cheat the system.

Control of firms that produce both organic and conventional products is achieved through unannounced visits to the firms. These firms are visited at least a few times per year, usually more. At the visits, FDIR looks at the firm's organic report stating how they obey the organic regulations. FDIR suggests that at the very least organic products must be separated from conventional products on different shelves. Sometimes a physical barrier is suggested to separate the products. For butchers that sell organic and conventional meats, the two products are not allowed to touch each other, and the organic products are suggested to have their own section of the market.

When dealing with bakeries that produce organic and conventional bread, the organic plan must state how the two breads will be kept separate from each other. The organic bread can be made in a different place from the conventional bread, but the bakeries are usually small and do not have the space for this. Instead, as with the slaughterhouses, organic bread can be made at a different time than conventional bread. If organic bread is made first, then conventional bread can be made after it. If conventional bread is made first, then the surface on which it was made must be disinfected before organic bread is made.

Animal welfare practices when it comes to disease do not differ greatly between organic and conventional producers. There are special veterinary rules for organic animals which need to be followed for the animals to be certified organic. The only food safety issue that differs between organic and conventional animal product is that the same preservatives cannot be used for both products.

Jens could not say that organic products are better than conventional products, but the most important aspect of organics is that they are better environmentally and the animals are treated better.

Mogens Werge of COOP Denmark

Mogens Werge, key account manager for COOP Denmark was interviewed on Tuesday, April 15, 2003 at 13:00 by Erin Bliven and Nick Seifert.

COOP stores first began stocking organic products in the 1980s. However, they did not begin consistently stocking organic products until 1993. In 1993 a SuperBrugsen applied a new strategy and lowered the prices of organic products, which resulted in organic products being sold in all COOP stores. At this time there were very few organic products, only about eight to ten of them, mainly milk and carrots. The motivation in stocking organic products was because COOP thought they would have a niche market.

The stocking, selling and marketing strategies differ among the seven COOP chains according to their market position. For example Kvickly has larger shops and therefore stocks more products. All the stores will also have different stocks of organic products depending on their location, with the stores in Copenhagen and Århus stocking the largest quantity and variety of organic products. Also there are 70 SuperBrugsen stores, mostly in Copenhagen and Århus, that are special organic stores and stock more organic products than the other SuperBrugsen shops. Lastly, out of the 90 Kvickly stores, 20 of them stock more organic products than the others. These special organic shops were selected and established so that they would be close to where the organic consumers are living. Despite the fact that some stores stock more organic products than others, all the chains under COOP stock the same brands of organic products. Shops that are away from cities do not stock as many organic products because there is not a larger consumer demand. The decision about what organic products to sell is made by COOP for all the supermarket chains.

Throughout the course of the year, COOP carries about 700-800 organic products. This number varies by season because there is more fresh produce when it is in season. Consumers are generally satisfied with the supply of organic products in COOP stores. COOP will only continue to stock a product if consumers demand it. For this reason, the organic products are not more profitable than the conventional products. At this time there is an adequate supply of the organic products COOP demands. In the 1990s there was a milk shortage, but such is not the case anymore.

COOP has a market share of 38% of the organic retail market. Some products have much larger market shares than others, specifically milk, eggs, carrots and flour. Whereas meat has a very low market share of 1-2%. The lower market share of meat may be because of the price gap between the price of the organic product and the conventional product. Meat may also have a lower market share because when organic meat was first produced some of it was very low quality because it came from old dairy cows.

Mogens believes that the biggest challenge for organic food retailers is being able to produce a quality product. Also organic companies must produce innovative products and have increasingly efficient production so that they can lower their costs.

COOP's largest product supplier is Arla Foods and producers of similar size. For meat products, COOP purchases from Friland and Hanegal. COOP's motivation in selecting organic suppliers does not differ from conventional suppliers, organic companies are not treated differently because they are organic. The organic products are treated just as traditional conventional products, but they are traditional, they are just grown organically. The organic companies must be able to meet COOP's supply demand in that they must deliver quality products at a consistent price. COOP purchases products from both small and large companies. They will buy from small producers as long as the producer can supply the quantity of products COOP needs. The smaller companies tend to have more marketing troubles than the larger companies, in that they may not have the money to advertise and they may not be able to meet the supply demands if one of their products is on sale.

COOP's ethical responsibilities allow its workers to have the right to organize and prohibit child labor. COOP does not have any special ethical considerations for its organic products because they must comply with the European Union and Danish regulations which has animal welfare policies written into them.

For the future market, COOP will continue to stock organic products as long as consumers are buying them. Certain products may be dropped from the shops if they product is of low quality, but the entire organic selection will not be dropped as long as the products are demanded. For future growth, Mogens hopes that Denmark will be able to maintain its high level of organic sales, and possibly grow about 5%.