

Local Food and Grinnell College Dining Services:
A Report from the Group Independent Study, Spring 2006

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Executive Summary

The local food movement has been gaining momentum in communities and institutions throughout the nation. This report is the culmination of a semester long research project conducted during the spring of 2006 by ten Grinnell College students, under the supervision of Professor Jonathan Andelson, to investigate reasons for and the possibility of increasing the quantity of locally-produced food served in the college dining halls. The project focused on seven topics: environmental impact, nutrition, dining service logistics, producer logistics, economic impact, student opinion, and local foods at public schools. The project's main findings, reported in detail in the accompanying papers, can be summarized as follows:

- Food miles, fuel consumption and carbon emissions are a means to measure environmental impact of local foods. Compared to the College's current food system, a more locally based food system would decrease the distance that food travels, use less fuel, and release less carbon dioxide.
- Since local food travels a shorter distance than conventionally sourced food, it retains nutritional value and can be harvested at an optimal time. Additionally, local foods do not require preservatives or genetic engineering to extend shelf life.
- Grinnell College Dining Services, which is owned and operated by the college, has specific requirements of the food products that it purchases for use in the dining halls. These include: acceptable appearance, sufficient quantity, appropriate packaging, reasonable price, and timely delivery of the food products. Local producers must be able to meet these requirements in order to incorporate their products into the college's food system. In the fall of 2006, Dining Services will shift to a marché style dining facility, which presents the opportunity to utilize more local foods.
- A number of producers have been identified in and around Poweshiek County who could supply food products to College Dining Services. The best way for such producers to meet Dining Service's requirements would be through a producer cooperative.
- Some locally produced foods cost less than conventionally-sourced equivalents. Dining Service could not only save money by purchasing some food locally, it could also benefit the economy of Poweshiek and the surrounding counties.
- An opinion survey of the entire student body, with a 52.2% response rate, found strong student support for the idea of incorporating more local food into the dining halls.

- A study of the potential for more local food use in the Grinnell-Newburg public school district was conducted as an extension of the College's local food efforts. This project emphasizes the importance of an integrated and sustainable food system in the Grinnell community.

By investigating these aspects of the local food system, this study found that serving locally produced food in the Grinnell College dining halls is a viable option for the College. The purpose of this study is to provide a foundation for the understanding of the issues behind the local food situation at Grinnell and encourages the future development of this system.

Acknowledgements

We would like to thank several people who have made our research, this project and this final report possible.

Our research was made possible by the support of Dick Williams, Scott Turley, Jeanette Moser, and Terry Waltersdorf from Dining Services. Throughout the semester they have, without fail, responded quickly to our endless emails, provided us with necessary information and expressed interest in our cause.

We would also like to extend many thanks to the local producers for their patience and cooperation throughout this project.

Lastly, we would like to extend our gratitude to our faculty advisor, Jon Andelson, who helped us organize our thoughts about local food and took care of much more than the logistics in order to turn this project into a reality.

A Note from the Faculty Advisor

This project was born from a meeting between Eli Zigas, '06, and myself following his return from the 2005 Greening of the Campus Conference at Ball State University. At the conference, Eli encountered the idea of dedicating a college course to studying an issue of campus life that had implications for the college's impact on the environment. Knowing that he and I shared an interest in local food, Eli asked if I would consider sponsoring such a course in the next semester. The specific focus he had in mind was to study the feasibility of increasing the amount of locally-produced food used by the college's Dining Services. I readily agreed, provided the course was largely student-run. As the idea lay outside the normal *modus operandi* of Grinnell College, we sought (and received) permission from Dean Jim Swartz to try the experiment, for which we thank him. We advertised the course, talked it up, and held a couple of organizational meetings, and in the end ten bright and highly motivated students enrolled in it. However one labels the *style* of learning that occurred -- engaged learning, service learning, applied learning, or some better term -- the course was a novel experience for all of us. Judging from their anonymous comments in the end-of-course evaluations, the students found the experience very rewarding. They enjoyed the camaraderie, the contact with the community, the self-direction and responsibility, and the "real world" impact the class afforded. They enjoyed the feeling that learning could be directly involved in making a difference. For my part, the course required a good deal of "letting go." The high caliber of the students ensured that I never regretted doing so. I thank them for their outstanding individual and collective efforts.

Jonathan Andelson
Professor

Chapter 1: Introduction

This report is the product of a study, conducted by a group of Grinnell College students, of the reasons for and the possibility of increasing the quantity of locally-produced food served in the college's dining halls. Research focused on seven topics pertinent to the issue of local food: environmental impact, nutrition, dining service logistics, producer logistics, economic impact, student opinion, and local foods at public schools.

The project was undertaken with an awareness of a national movement that promotes local food. The resurgence of farmers markets, increasing popularity of supermarkets that sell local food, and the growth of community-supported agriculture (CSA) are current examples of this movement (see Appendix A). The national Farm-to-College Movement also supports local foods by linking college and university dining services to area producers (see Appendix B). The project is also connected to an Iowa local food movement, supported by several state-wide organizations, including Practical Farmers of Iowa's (PFI) "Buy Fresh, Buy Local" campaign¹ and the Iowa Network for Community Agriculture (INCA)², while the Grinnell Area Local Food Alliance (GALFA)³ promotes local food in the counties surrounding Grinnell.

There is no universally agreed upon definition of "local food." For the purposes of our study, we considered food to be local if it was produced within an area covered by three concentric rings centered on Grinnell. The innermost ring -- the most local and most preferred -- includes Poweshiek County, where Grinnell is located, and the surrounding counties of Tama, Benton, Iowa, Keokuk, Mahaska, Marion, Jasper, and Marshall. The second ring includes the entire state of Iowa. The outermost ring encompasses the states surrounding Iowa (see Appendix C). This concentric ring model allowed us to differentiate degrees of local.

In the past, The College and local producers have worked to increase the amount of local food in the dining halls. For various reasons, these efforts were not successful. In a

¹ Practical Farmers of Iowa, <<http://www.practicalfarmers.org/>> (18 May 2006)

² Iowa Network for Community Agriculture, <<http://www.growinca.org/>> (18 May 2006)

³ Grinnell Area Local Food Alliance, <<http://web.grinnell.edu/cps/galfa/index.htm>> (18 May 2006)

sense, the group independent study has sought to reignite these efforts. This second local food effort addresses more carefully the challenges faced by the producers and the College. The goal of this report is to provide a foundation for many conversations between the College and producers in the future.

The College is already making progress towards supporting local food. We calculated that 5.8 percent of the College's total food purchases are currently sourced from local farmers and producers. This translates into an estimated \$70,000 dollars added to the local economy annually. However, we also believe that there is considerable room to increase that percentage. Not only do we hope to see the college move beyond a 5.8 percent baseline for local food purchases, but we also hope that as the College expands its local purchases, it focuses on those producers closest to Grinnell. Participating and helping to recreate a local food system aligns with the College's commitment to social and environmental responsibility. We look forward to seeing more and more locally grown products used by Grinnell College Dining Services.

Chapter 2: The Impact of Grinnell College’s Food System on the Environment

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2.1: Introduction

When evaluating the costs and benefits of a food system, it is important to take environmental impact into account. Due to Grinnell College Dining Service’s reliance on “conventional” food suppliers and distributors, the environmental impact of the college’s food system is quite significant. This paper is intended to offer an outline of this impact in comparison with the impact of a local food system. The objectives of this paper are:

- To describe the sources, purchasing, processing, and distribution paths of a select number of “priority food items” (see Appendix D) currently served in the dining halls, including those that come from nation-wide, regional, and local suppliers
- To compare the current system to the opportunities for a local foods system
- To compare the environmental impacts of the two food systems, based upon comparisons of “food miles”, fuel consumption, and carbon dioxide emissions

The priority food items on which we focused were selected because they could potentially be purchased locally. These items included dairy products, meats, and a select number of produce items (see Appendix D). We obtained the information about these foods and the distributors the College buys them from by conducting phone interviews with representatives of these companies (see Appendix E for interview form used).

Currently, food prices do not reflect the environmental costs related to food production, processing, transportation and distribution. As a result, consumers are not presented with a financial incentive to buy products that minimize the effects on the environment that they, too, occupy. Consumers like Grinnell College should consider these hidden environmental costs when making food-purchasing decisions.

There are countless factors that are of great importance in a consideration of the total environmental impact of any given “food system.” A food system includes the growing/production, purchasing, processing, distributing, storage, and consumption of

food, and, ultimately, the disposal of food waste. In other words, a food system involves all the steps through which food travels on its way from farm to table, and therefore also includes the transportation necessary to bring foods between the various locations of these steps. Clearly, there are a wide variety of possible sources of environmental effects stemming from these various stages in food systems, including the pesticides used in growing produce, the energy expended in running processing equipment, refrigerating foods, and so on. For the purposes of this study, however, environmental impact will be evaluated in terms of the “food miles” involved in the Grinnell College food system.

Food miles measure the total distance food items travel as they make their way through a food system. The concept of food miles has been used in other studies that have measured the environmental impacts of food systems¹. Food miles are important to consider when evaluating environmental impact because transporting foods over long distances means consuming large quantities of fossil fuels, which are a non-renewable resource. High food mileage also means the emission of significant amounts of carbon dioxide, which contributes to global warming. Together, food miles, fossil fuel consumption, and carbon dioxide emissions will form the basis for the evaluation of the environmental effects of Grinnell’s current food system, and for comparisons between it and the impacts of a potential local foods system.

2.2: Current Food System

Grinnell College’s Dining Services is independently operated, and is therefore unaffiliated with any national institutional food service company, such as Bon Appetit or Aramark. (See the section of the report detailing the logistics of Grinnell’s Dining Services for more details.) Because Grinnell’s dining operations are run independently, Dining Services has a great deal more flexibility than many college dining programs. This flexibility gives Dining Services a great advantage in re-thinking its definitions of “local” food, and allows room for changes in purchasing patterns to reflect these new definitions.

¹See, for example, Rich Pirog et. al., “Food, Fuel, and Freeways: An Iowa Perspective on How Far Food Travels, Fuel Usage, and Greenhouse Gas Emissions”, Ames, Iowa: Leopold Center for Sustainable Agriculture at Iowa State University, June 2001

Dining Services' flexibility currently makes it able to buy food from up to fifty suppliers². The majority of the food Dining Services buys, however, comes from a few major suppliers. The largest supplier is SYSCO of Iowa; other major suppliers include Robert's Dairy, Pan-O-Gold Bakery, Farmer's Hen House, and several specialty or occasional suppliers. . shipping small numbers of items of purchasing small numbers of items from each of a large number of broadly-dispersed suppliers. receiving items shipping small numbers of items from a large number of broadly dispersed suppliers

The priority food items are currently being supplied to the college by SYSCO and Robert's Dairy (Appendix F). (See Appendix G for map illustrating the current food pathways for these items.) The following sections will describe what items are purchased from each supplier, and will outline the supply and distribution patterns of each company. SYSCO of Iowa, Inc.:

The vast majority of products are bought through the regional branch of SYSCO, a food distribution company with nationwide reach – and the largest such distributor in the world. Although Dining Services orders food items ranging from produce and meats to condiments and pre-made desserts from SYSCO, we focused our research on the items on our priority foods list.

SYSCO obtains the fresh processed produce it distributes to Grinnell from GoFresh, a Midwest-based company which processes (washes, chops, etc.) the produce it receives from farms and ships this produce to SYSCO of Iowa's main storage and distribution facility in Ankeny, Iowa. Produce is then trucked the fifty-five miles from Ankeny to Grinnell twice a week in a refrigerated tractor-trailer operated by SYSCO. The farms from which GoFresh buys produce vary depending on their growing seasons – i.e., GoFresh may buy produce from Midwestern farms during the summer, but to provide produce to SYSCO year-round, it buys from farms on the West Coast during the winter, since these farms have longer growing seasons. We were unable to obtain information about the proportion of each produce item that GoFresh buys from producers in each of the various states that, at one time or another, can provide it with that product.

SYSCO is aware of the high costs of shipping foods over long distances, and makes purchasing decisions aimed at reducing these costs. As fuel prices increase,

² Dick Williams (Grinnell College Director of Dining Services), presentation to class, January 31, 2006.

SYSCO buys more foods from suppliers that can provide the company with a wide range of food items, so as to reduce the high total transportation costs of buying from numerous suppliers that each ship small numbers of items. In addition, SYSCO makes efforts to organize its deliveries so that fleets can back-haul locally produced items to SYSCO's Ankeny headquarters (e.g., bringing back fresh eggs from Belmond and Hampton, Iowa, after dropping off deliveries in these areas, instead of sending out an empty truck on a separate trip to pick up eggs).

Despite the transportation cost incentives for buying locally, there are significant obstacles to SYSCO supplying the College with more local foods. As has been mentioned, Iowa winters present one problem in shifting to a local food system; but even during the Midwestern growing season, local supply is insufficient to meet all of the demand SYSCO faces from its numerous customers. It would therefore be difficult for the College to rely upon SYSCO for its purchases of local foods. A second obstacle is that SYSCO can only purchase foods from producers with whom they have a "whole-harmless agreement", including \$2 million in insurance coverage, which is carried by the producer. Purchasing such a large amount of insurance coverage poses an insurmountable obstacle for many local producers. These difficulties do not rule out the College's purchasing of local foods; they simply mean that buying them through SYSCO is probably not feasible.

Regional Food Purchasing

Although Grinnell Dining Services buys the vast majority of the items served in the dining halls from SYSCO, several suppliers of key, staple products are based in Iowa and surrounding states, and are currently described by Dining Services as "local". These include Midwestern producers and distributors of dairy products, packaged breads, and Kosher meats; an Iowa egg co-op and shell egg distributor; an Iowa-based Halal meat distributor; Iowa-processed soybean oil; an Iowa-based "backup" produce distributor (used by Dining Services when SYSCO is temporarily unable to meet their produce needs); an Iowa-based distributor of convenience store products (sold in the Forum Express store); and, most local of all, a Grinnell source for the herbs used by the Catering division of Dining Services. However, as the following discussion will illustrate, even

many of these regional suppliers have complex production and distribution systems that complicate their designation as “local”.

Robert’s Dairy

Grinnell purchases many of its dairy products through Roberts Dairy, a Midwestern company that distributes throughout seven states in the region³. Products bought from Roberts include the cottage cheese, whipped cream, milk (both 2% and skim), and yogurt served in the dining halls, as well as the small cartons of milk and individual servings of yogurt sold at the Forum and in Grab-and-Go lunch offerings. Roberts runs three production plants and ten distribution centers, and the dairy products Dining Services buys come from Roberts’ dairy farms and production plant near Omaha, Nebraska, and then pass through their Grimes, Iowa, distribution center, before arriving at Grinnell via refrigerated tractor trailer. Roberts offers a good illustration of the complexity of large-scale food distribution systems, including regional ones, as the various steps in the production of Roberts’ products take place at various facilities that, while regional, are separated by significant distances and thus require considerable shipping to ultimately get the products from their source to the consumer.

Pan-O-Gold Baking Company

Although breads were not included in our list of priority food items because there is not yet a local supplier of breads for the College, we did investigate Pan-O-Gold Baking Company, a Midwestern source of many of the breads served in the dining halls, so that we could get a sense of the full extent of Dining Services’ current efforts in regional food purchasing. Pan-O-Gold distributes prepackaged loaf breads, buns, and rolls to Grinnell through its headquarters fifty-five miles away in Ankeny, Iowa. In Ankeny, breads are sorted for shipping and loaded into both semi-trailers, which take the bread to more distant distribution points, and smaller trucks, which are used for more local distribution. The College’s bread is shipped from Ankeny to Grinnell in these smaller trucks, the gas mileage of which is between eight and ten miles per gallon (mpg). However, semi-trailers are used to ship breads from the three bakery locations to the distribution center in Ankeny. A baking company in Saint Cloud, Minnesota, bakes the

³ Roberts Dairy, “Roberts Dairy History”, *Company Information*, <http://www.robertsdairy.com/history/>, (accessed May 1, 2006).

loaf bread; hamburger and hot dog buns come from Madison, Wisconsin; and a Fargo, North Dakota, bakery supplies Hoagie buns and rolls. Pan-O-Gold's Regional Sales Manager was not sure where the flour and other ingredients used in Pan-O-Gold bread originate (as packaged breads are not required to carry this information on their packaging), but he did know that the wheat flour used by the bakeries was bought from General Mills.

Current Local Food Purchasing: Farmer's Hen House

Farmer's Hen House is the current local source of shell eggs used in Grinnell's dining halls. (Farmer's Hen House is essentially the sole supplier of shell eggs to the College, but Dining Services also buys some liquid eggs from SYSCO. The path taken by Farmer's Hen House's liquid eggs to get to Grinnell is slightly different than that taken by shell eggs, as liquid eggs are shipped to a processor in Abbotsford, Wisconsin, before they come back to Iowa.) Farmer's Hen House is a cooperative of approximately thirty-five farms, all of which contribute to the supply of eggs served in Grinnell's dining halls. Most of the farms are located within fifteen miles of Farmer's Hen House's headquarters in Kolona, Iowa, but about five of the farms are located further away, in Bloomfield and Brighton, Iowa. The eggs are sent to Kolona for packaging and sorting and are then distributed directly from the Kolona plant to Grinnell using Farmer's Hen House's own truck. The co-op plans to start using a smaller, more fuel-efficient truck to distribute to Grinnell, due to the high price of gas.

Regional and Local Purchasing: Specialty Items and Occasional Purchases

Mariposa Farms

The Catering division of Dining Services regularly purchases herbs for use in special meals for groups and events from Mariposa Farms, a Grinnell-based herb company. (Herbs used in dining hall meals are purchased from SYSCO, not Mariposa.) A Mariposa employee brings herbs from their greenhouse and packaging facility a few miles away from the College in one of the company's small trucks. During the winter (November to mid-February), Mariposa herbs are not grown in Grinnell; due to the lack of light and heat for greenhouse growing, the company distributes herbs grown by other herb companies in warmer climates. These herbs come from locations as far away as Hawaii, Mexico, California, Costa Rica, Chile, and Israel. (This is a standard, accepted

practice in the herb industry.) At these times, about seventy to eighty percent of the herbs Mariposa distributes are grown in its greenhouses, so imports constitute about twenty to thirty percent of its product. Our class currently considers the College's purchases of herbs from Mariposa for Catering to be an example of the College's efforts to integrate local foods into their purchasing, but it is important to point out that the herbs bought from Mariposa do not always come from Grinnell. It also should be noted that Mariposa produces herbs in sufficient supply to meet the College's dining hall needs, in addition to its Catering needs.

Specialty meats: Midamar Meats and Twin City Poultry

Dining Services also currently purchases seventeen different specialty Halal meat products from Midamar Meats, a regional supplier. (These products include: beef bologna, cooked corned beef, beef patties, pepperoni slices, roast beef – both raw and cooked, cut-up ¼ chickens, chicken nuggets, chicken patties, whole chickens, beef salami, beef stew, lamb legs, lamb stew, sliced turkey breast, raw turkey, and smoked turkey breast.) Midamar buys meats from a Minnesota slaughterhouse, and meats are shipped from there to the company's headquarters and distribution center eighty-three miles away in Cedar Rapids, and then transported via FedEx truck to Grinnell. (Midamar was unwilling or unable to reveal the exact locations of the farms where the animals that provide its meats are raised, but said that these farms were located "close" to the Minnesota slaughterhouse.) Dining Services also buys kosher meats from St. Paul, Minnesota-based Twin City Poultry.

Occasional Regional Suppliers:

Reinhart Food Services (Cedar Rapids) and Loffredo Produce (Des Moines) are used by Dining Services as "backup": the College purchases from them when SYSCO is temporarily unable to meet the College's demand for a particular produce item.

Occasional Local Purchases:

Purchases from local grocery stores McNally's and Hy-Vee, and from Juli's, the local natural foods store, are made occasionally, as are purchases of Iowa wines or other select products for special events. Indeed, Dining Services devotes an entire special meal to local foods at the beginning and end of each year, and all products served – corn, meats, melons, etc. – at this meal come from Iowa. (We based our environmental study

on Dining Services' purchasing records for January through March 2006, and we did not find mentions of purchases of any of the above-mentioned local or regional items in these records. We were unable to obtain purchasing records for an entire year from Dining Services, but more extensive records would presumably include purchasing data for these various specialty local and regional items.)

“Local” Products Purchased Through SYSCO: Wildwood Harvest & Asoya soybean oil

Dining Services began using Asoya soybean oil in the dining halls last year. Asoya was developed and initially produced by an Iowa farmer's cooperative, but now it is processed by Cargill in Eddyville, Iowa. Grinnell purchases this product through SYSCO. Dining Services also buys products from the locally-based natural foods company Wildwood Harvest from time to time, but buys them through SYSCO.

Summary

In summary, Dining Services has already begun to make purchasing decisions that indicate an interest in buying from nearby sources. Currently, only a few of the products regularly served in large quantities in the dining halls would be designated by our class as “local”; most notable among these products are the eggs purchased from Farmer's Hen House in Kolona. The products purchased from regional sources – such as the dairy products from Robert's Dairy and the meats from Midamar – are a step in the right direction, but it is also hoped that these descriptions of the complexity of many of the “regional” food systems will illustrate that they do not necessarily offer the benefits of a truly local foods system.

2.3: Potential Food System

Grinnell's Dining Services could fulfill many of its produce, meat, and dairy needs through buying from local farmers (see Appendix H for map illustrating locations of local suppliers). The details of this local foods system will be explained in the section of this report that covers local producers; the purpose of this description of a local foods system is to provide an overview of the ways in which a local foods system could meet the College's current demand for the items on our “priority foods” list and still decrease the environmental footprint of our food system. Later segments of this section of the report will detail the environmental benefits of local purchasing, and how they compare to conventional purchasing, in greater detail.

During the Iowa growing season, priority produce items could be bought from several local farms (see Appendix I). During the winter, however, local produce from these sources would currently have to be supplemented with purchases from conventional suppliers, which would mean that during this part of the year produce would be coming from the distances that appear in the current food system (Appendix J). But the amount of food that would need to be shipped from great distances could be subject to change if, for example, Dining Services were to accommodate more storage of local foods during their growing season or if greenhouses or other alternative growing methods were to be constructed and adopted by the College.

Meats and dairy products, however, could be bought locally throughout the year. Swiss Valley could provide dairy products, and currently is the dairy supplier for the Grinnell-Newburg school district. The path of meats to the College would be slightly less direct than that of produce: produce items would come straight from farms to the College, while meats would be taken by local farmers to Dayton Meat Locker for slaughtering and other processing, and then would come from the locker to the College.

2.4: Approach to Analysis

We obtained information about the production location and the food pathway through interviews with representatives from each of the relevant suppliers (Appendix E). We calculated the total food miles for each item on the priority food list by using mapquest (www.mapquest.com). While the routes measured from this website may not be exactly the routes that are traveled during the transportation of food for either food system, it gave us the most accurate measurement of distance possible.

WASD Analysis

While food miles are often used to characterize the distance traveled by food between the producer and the consumer, the *Weighted Average Source Distance* (WASD) is a single numerical value that represents the amount of food that is transported the distance from the producer to the consumer (Pirog Food Fuel Freeways). The WASD analysis proves to be especially useful when food items are sourced from multiple producers.

$$\text{WASD} = \frac{\sum(c_i * d_i)}{\sum(c_i)}$$

Where

i = the locations where the product is produced

c = the amount consumed from each location of consumption origin

d = the distance between location of production and the point of consumption

We used the WASD analysis in the calculation of food miles for two food systems.

Pessimistic & Optimistic Models

For the purposes of our analysis we developed two models: a pessimistic model and an optimistic model. For a number of the conventionally sourced priority food items that the college receives from SYSCO, the most specific information about the production location we were able to obtain was a list of states from which SYSCO purchases its products (Appendix K). Due to the lack of clear and exact information, the two-model system became necessary in order to obtain a quantitative value for these food items that could be used in the analyses. In the *pessimistic model* we assumed that all the food purchased by the dining hall was coming from the farthest production location. For the *optimistic model*, we assumed that the food used at Grinnell was coming from the closest location. Take red potatoes as an example. SYSCO currently distributes red potatoes to Grinnell. These potatoes come from Minnesota, North Dakota, South Dakota, Florida or California. We were not able to obtain information about what percentage of the red potatoes purchased were coming from any one of these state. The pessimistic model assumed that all potatoes were coming from California and the optimistic model assumed that all potatoes were coming from Minnesota. These two models represent the extreme scenarios for the conventionally sourced food system, and Grinnell's current food system most likely lies somewhere between them.

Time Frame of Comparison

The time frame of the comparison of the environmental impact between the conventionally sourced food system and the hypothetical more locally sourced system is one year. Dick Williams provided us with information regarding the quantity of food purchased by the dining hall for the Priority Food Items for January, February, and March of 2006. Students are on campus eating in the dining halls for two-thirds of this 3 month period (9 of 12 weeks). This fraction is approximately representative of the amount of time that college students are on campus over the course of the year. Based on this

assumption, we used the data from this 3-month period and extrapolated it over the 12 months of the year.

Fuel Consumption

In order to calculate the fuel consumption for the two food systems, we assumed that tractor trailers used in the current food system get a gas mileage 6.1 miles per gallon while the light trucks used in a local food system get a gas mileage of 17.2 miles per gallon⁴.

Carbon Emissions

To calculate carbon dioxide emissions we assumed that tractor trailers, which use diesel fuel, emit a total of 22.8 pounds of carbon dioxide (CO₂) per gallon of gas⁵. The potential local food system would rely on a mix of midsized diesel trucks, which emit 22.1 lbs CO₂/gal., and small gas truck, which emit 19.6 lbs CO₂/gal⁶. We assumed that local producers would emit a rough average of 20 pounds carbon dioxide per gallon of gas consumed.

2.5: Results

Food Miles

The total food miles for the more locally based food system was lower than that for Grinnell's current conventionally supplied food system. The decrease is between 23.2%, calculated by the pessimistic model, and 19.7%, calculated by the optimistic model (Figure 1).

⁴ Pirog, R. et. al., "Food, Fuel and Freeways: An Iowa Perspective on How Far Food Travels, Fuel Usage, and Greenhouse Gas Emission", Ames, Iowa: Leopold Center for Sustainable Agriculture at Iowa State University, June 2001.

⁵ *ibid.*

⁶ *ibid.*

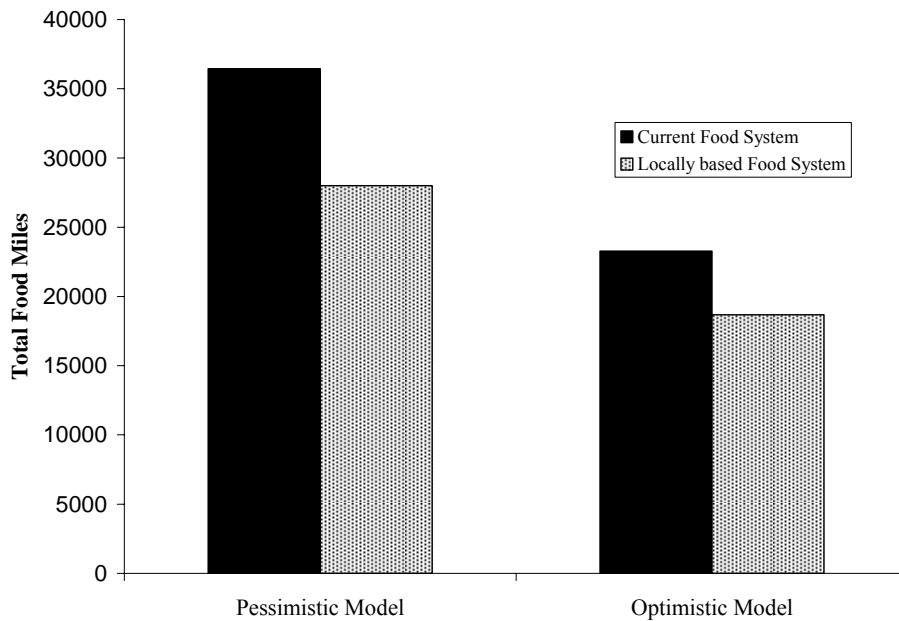


Figure 1. Comparison of the Annual Food Mileage of Grinnell's Current Food System to a More Locally Based Food System for Priority Food Items

Fuel Consumption

As might be expected based on the total food miles for the two food systems, the fuel consumed in the more locally based food system is less than the current food system. The amount of fuel consumed in the more locally based food system was 73% lower than the amount of fuel used in Grinnell's current system (Figure 2).

This decrease not only reflects the increase in food miles for the conventionally sourced food system, but also reflects the type of vehicle used in the transportation pathway associated with each system. While the conventionally sourced system uses tractor-trailers to transport food products, the farmers in the more locally based food system usually use mid-size or small trucks. These trucks get better gas mileage than tractor-trailers and consequently, use less gas.

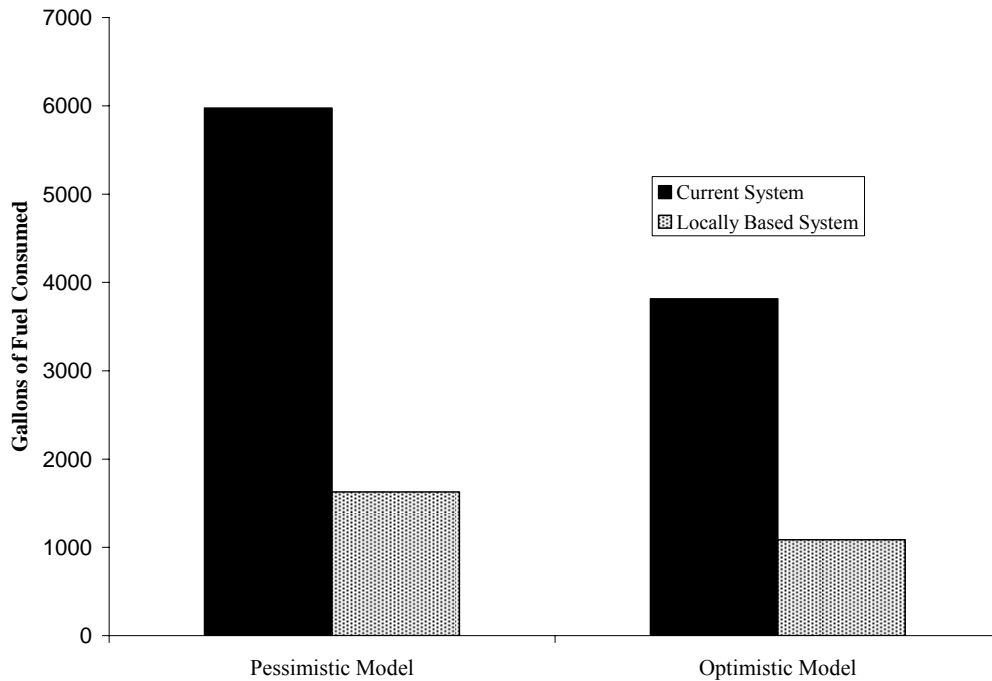


Figure 2. Comparison of the Annual Fuel Consumption of Grinnell's Current Food System to a More Locally Based Food System for Priority Food Items

Carbon Emissions

The calculations of the total carbon dioxide emitted for each of the two food systems revealed that if the college were to switch to a more locally based food system, the amount of carbon released while transporting these priority food items from the producer to the consumer would decrease by about 75%.

This reduction represents the overall decrease in fuel consumption as well as a switch from tractor-trailer transportation, which consumes diesel fuel, to more gas consumption in the locally based food system. Gasoline combustion releases a smaller quantity of carbon compounds into the atmosphere than does the combustion of diesel fuel.

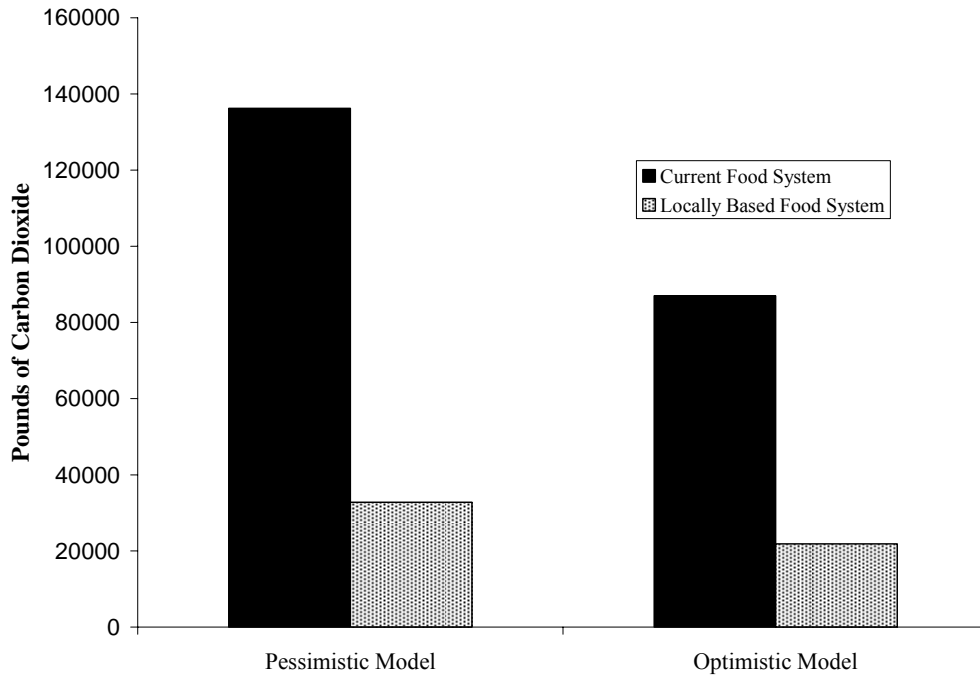


Figure 3. Comparison of the Annual Carbon Dioxide Emissions of Grinnell's Current Food System to a More Locally Based Food System for Priority Food Items

2.6: Recommendations

If Grinnell's current food system were to become more locally-based, the College could significantly reduce its contribution to air pollution. A local foods system would cut back on the food miles involved in bringing our meals to the dining halls, and thereby also reduce the amounts of fossil fuels used and carbon dioxide emitted to provide us with our foods.

Fuel costs are only one component of the costs of food distribution, and as a result they are not the only determinant of the differences in price between conventional and local products. Fuel prices would therefore need to increase significantly in order for the food miles and related amounts of fuel consumed and carbon dioxide emitted to play a role in the food purchasing choices of most consumers. Despite the fact that the environmental impacts of fossil fuel consumption and carbon dioxide emissions are not currently assigned an economic value that can be incorporated into the pricing of foods, Grinnell College needs to seriously consider these environmental impacts and evaluate the food it purchases accordingly.

And indeed, the College has stated commitments to such evaluations. Dining Services' Vision Statement has long included their intention to “develop, on an ongoing basis, progressive menus”; to purchase “quality products, in an ethical and responsible manner, in support of the overall mission of the College”; and to “promote environmentally conscious behavior”, and its purchases of local eggs demonstrate Dining Services' interest in taking steps to follow through on this vision⁷. The College administration has also adopted a statement regarding its understanding of the importance of local foods, and this statement includes mentions of the environmental benefits of local purchasing, particularly in light of “the college’s commitment to environmental responsibility”. (See the Conclusion chapter for full statement).

The College could decrease the environmental impacts of its food system not only through increased purchasing of local foods, but also through the construction of a greenhouse for year-round growing of local produce, even when they are unavailable from local farmers. Accommodating extra storage of foods purchased during the growing season from local farmers for use during the winter would also be a means of increasing usage of local foods throughout the school year. (It should be noted, however, that Dining Services also operates on a limited basis during the summer, which is the height of the Iowa growing season, and so opportunities for local purchasing could also be taken advantage of during this time.)

As has been mentioned, peer institutions like Middlebury College have taken steps to increase their use of local foods throughout the year by constructing greenhouses; and, as our class learned when Nan Jenks-Jay, Middlebury’s director of environmental affairs, came to speak at Grinnell recently, such schools also have drafted resolutions recognizing the environmental impacts of their food systems and laying out ways to reduce these impacts. (Middlebury’s statement in particular addressed the carbon emissions of their food system.⁸) In further recognizing the impact of our foods at Grinnell and taking the above steps to reduce that impact and buy locally, the College could be following in the steps of its peer institutions. But perhaps more importantly,

⁷ Grinnell College Dining Services, “Vision Statement”, <http://www.grinnell.edu/offices/dining/aboutus/mission/>, (accessed May 2, 2006).

⁸ Middlebury College, “Carbon Reduction Resolution”, *Campus Initiatives, Environmental Affairs*, 2004, http://www.middlebury.edu/administration/enviro/initiatives/carbon_reduction_resolution.htm, (accessed May 2, 2006).

Grinnell would be taking significant steps towards supporting its own commitment to environmental sustainability. If we expect to live, work, and study in a clean and healthy environment, and to leave such an environment for future communities in Grinnell and around the world, such recognition and action is vital.

Chapter 3: Nutrition and Local Foods

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It is essential that we consume foods containing ample nutrients in order to best care for our health. Food provides us with energy and helps defend against disease. Likewise, “mental processes and behavioral attitudes appear to be influenced by nutritional status and specific nutrients”.¹ In this section, I intend to analyze some aspects of the nutritional value of local food compared to conventionally sourced food, and to show that in addition to positively affecting the environment, eating locally has important health implications.

First of all, I would like to raise the following question: although food scientists call attention to the value of nutrition, are consumers similarly preoccupied with the nutritional content of their food? Upon examining the produce at various supermarkets, I notice an uncanny degree of uniformity. Each type of fruit or vegetable has a similar size, shape, and color, and the large majority of produce is unblemished. These observations lead me to believe that today’s produce is marketed and sold based on its cosmetic appearance. Researcher Jack Doyle supports this hypothesis, arguing that “many consumers are more interested in their food’s shape, color, and consistency than in nutrition”.² However, as this report’s student opinion section illustrates in greater detail, our research indicates that Grinnell students express greater concern over the nutritional value of their food than the described average consumer. Seventy-five percent of students surveyed think about the nutritional value of their food “often” or “a great deal.” We want to nourish our bodies and minds with the most nutritious and delicious food available. Therefore, it seems appropriate to consider various factors that influence the nutritional content of food.

The majority of research on nutrition loss has been conducted on fresh produce; thus, we will explore the difference in the nutritional value of locally and conventionally produced fresh fruits and vegetables. Evidence indicates that fruits and vegetables are

¹ Norman N. Potter and Joseph H. Hotchkiss, “Nutritive Aspects of Food Constituents,” in *Food Science*, 5th ed. (Gaithersburg, MD: Aspen Publishers, 1998), 46-68.

² Jack Doyle, *Altered Harvest: Agriculture, Genetics and the Fate of the World’s Food Supply* (New York: Viking Penguin, 1985) 141.

incredibly important to our diets and the maintenance of our health. Produce contains various essential nutrients including beta carotene, fiber, folate, iron, niacin, magnesium, selenium, thiamine, vitamin A, B₆, C, and E. Fruits and vegetables also supply other important nutrient such as folacin, riboflavin, zinc, calcium, potassium, and phosphorus. However, these nutrients are not inherent components of produce; research suggests that

Many pre- and postharvest factors influence the composition and quality of fruits and vegetables. These include genetic factors, ...maturity at harvest, harvesting method, postharvest handling procedures, and process and cooking methods.³

Ausubel also suggests that the way fruits and vegetables are shipped, stored, and harvested affects their nutritional content.⁴ Therefore, I would like to take a moment to look at the role played by various production and handling practices in the degradation of nutritional content.

A key consideration in weighing the nutritional value of local and non-local foods is the concept of food miles, “the distance food travels from where it is grown or raised to where it is ultimately purchased by the consumer.”⁵ A study on produce consumption in the United States shows that, on average, fruits are transported 2,146 miles and vegetables 1,596 miles before reaching the grocery shelf.⁶ Therefore, unless we make an effort to purchase locally grown items, produce travels a long way before it arrives on our tables. This distance not only affects shipping, but also production, storing, and harvesting processes, consequently influencing food’s nutritional value.

First of all, because our produce is shipped great distances, large food producers frequently resort to conventional breeding or transgenics in order to produce fruits and vegetables with traits such as durability and strength for shipping, uniform ripening, and cosmetic appearance.⁷ According to Ausubel, “selecting for these traits generally *lowers*

³ Adel A. Kader “Pre- and Postharvest Factors Affecting Fresh Produce Quality, Nutritional Value, and Implications for Human Health.” *Proceedings of the International Congress Food Production and the Quality of Life. Vol. 1 (2002): 111.*

⁴ Kenny Ausubel *Seeds of Change: The Living Treasure*. San Francisco: Harper, 1994.

⁵ Rich Pirog et al. “Food, Fuel, and Freeways: An Iowa Perspective on How Far Food Travels, Fuel Usage, and Greenhouse Gas Emissions.” (June 2001): 9,
http://www.leopold.iastate.edu/pubs/staff/ppp/food_mil.pdf.

⁶ Ibid.

⁷ Jack Doyle, “Nutrition: Last in Line,” in *Altered Harvest: Agriculture, Genetics and the Fate of the World’s Food Supply* (New York: Viking Penguin, 1985) 136-158.

the plants' nutritional values."⁸ Additionally, a report from the National Academy of Sciences asserts that

Nearly all plant breeding programs in the U.S. emphasize yield, uniformity, market acceptability, and pest resistance. Plant breeders have lacked resources to extend their evaluation to factors of nutritional importance for reasons of time, effort, cost, technology, and lack of defined goals. Nutritional quality has not been recognized as a distinct dimension in plant breeding programs.⁹

Jack Doyle explains, "the genes for yield and those for protein content are connected to one another but not in a complimentary way".¹⁰ Therefore as a plant breeder tries to increase tonnage or yield, crops' nutrient levels decrease. University of Texas biochemist Donald Davis asserts that "high-yield crops grow bigger or faster, but are not necessarily able to make or uptake sufficient nutrients to maintain their nutritional value." According to recent studies, "vegetables, fruits, and wheat have revealed a 5 to 35 percent decline in concentrations of some vitamins, minerals, and protein over the last half century."¹¹ These declines are due to producers placing more emphasis on yield than on nutritional value.

Likewise, M. Allen Stevens, a tomato breeder working at the University of California, claims that "some of the characteristics considered desirable for mechanical harvest are in opposition to those needed for Vitamin C"¹².¹³ Similarly, Doyle finds that "breeding to maintain the crimson gene in certain tomato varieties for cosmetic reasons can lead to a decrease in beta carotene." Thus, it appears that producers, aware of the market value of appearance, are sacrificing nutrition for the sake of cosmetics. Rarely do plant breeders select for better nutrition, and when they do, the production crops are intended for livestock consumption. When fed to livestock, it is economical to produce crops with higher nutritional value because, even though yield will decrease, the

⁸ Kenny Ausubel *Seeds of Change: The Living Treasure* (San Francisco: Harper, 1994) 113-117.

⁹ "Task Force on Genetic Alterations in Food and Feed Crops," National Academy of Sciences (1973).

¹⁰ Kenny Ausubel *Seeds of Change: The Living Treasure* (San Francisco: Harper, 1994) 113.

¹¹ "Scientist Concerned at Plummeting Nutrient Levels," *Food Navigator USA on the Web*, March 15, 2006, <http://foodnavigator-usa.com/news/printNewsBis.asp?id=66440> (15 May 2006).

¹² Multiple studies on nutrient loss focus specifically on Vitamin C. Vitamin C is extremely important for human nutrition for the maintenance of healthy skins, gums, and blood vessels, the adsorption of iron, reinforcing the immune system, and as an antioxidant.

¹³ Kenny Ausubel *Seeds of Change: The Living Treasure* (San Francisco: Harper, 1994) 113.

consumption of this produce will improve animal product; therefore, profit will not be lost.¹⁴

Even if producers could be convinced to select for nutrient levels instead of other factors, limited information is available on the effects of breeding and transgenics. Therefore, although this practice has possible benefits, it could also potentially harm consumers.¹⁵ Furthermore, Columbia University nutritionist Joan Gussow explains that “plants are made up of thousands of chemicals, therefore all plant breeding is going to reduce or increase certain chemicals, many of them unmeasured, many of them perhaps even unknown.”¹⁶ Therefore, breeding can cause a myriad of unanticipated consequences. If food were produced locally, we would not need to select for industrial traits, producer and consumer relationships would encourage producers to act in the best interest of their neighbors, and nutritional content would be prioritized over yield, uniformity, and cosmetics.

Furthermore, if the food we consumed were produced closer to home, it would be transferred in less time, therefore necessitating less storage time. Kader’s research at the University of California at Davis suggests that freshly harvested fruits and vegetables contain more vitamin C than those held in storage because, as storage temperature or duration increases, produce suffers a gradual decrease in vitamin C.¹⁷ Research at Pennsylvania State University showed a decrease in levels of folate, a vitamin B compound, and carotenoids in stored spinach. Spinach kept at 39 degrees retained only 53 percent of its folate after eight days, and when stored at higher temperatures nutrients were lost at an accelerated rate.¹⁸ Moreover, related research found comparable results

¹⁴ Ibid, 114-117.

¹⁵ Jack Doyle, “Nutrition: Last in Line,” in *Altered Harvest: Agriculture, Genetics and the Fate of the World’s Food Supply* (New York: Viking Penguin, 1985) 136-158.

¹⁶ Jack Doyle, *Altered Harvest: Agriculture, Genetics and the Fate of the World’s Food Supply* (New York: Viking Penguin, 1985) 143.

¹⁷ Seung K. Lee and Adel. A. Kader “Preharvest and Postharvest Factors Influencing vitamin C Content of Horticultural Crops.” *Postharvest Biology and Technology* 20 (2000): 207–220.

¹⁸ S. Pandrangi and L.F. LaBorde “Retention of Folate, Carotenoids, and Other Quality Characteristics in Commercially Packaged Fresh Spinach.” *Journal of Food Science* 69, no. 9 (2004): 702.

for other vegetables, including kale, cabbage, and snap peas.¹⁹ In general, longer storage periods cause water loss and decay as well as losses in flavor and nutritional quality.²⁰

In order that food can be stored for extended periods of time, processors frequently can or freeze fruits and vegetables.²¹ However, research indicates that significant nutrient losses may occur during these processes. First of all, findings suggest that produce can suffer nutrient loss during the preparation practices that proceed canning and freezing.²² For example, researchers blanched asparagus, peas, green beans, and lima beans in preparation for canning and then analyzed their nutritional content. They found that blanched vegetables lost as much as 86% of their raw-product ascorbic acid, 64% of their thiamine, and 41% of their riboflavin contents.²³ Furthermore, an analysis of various processing methods and their effects on carrot juice's nutrient content suggests that canning results in the highest destruction of carotenoids.²⁴

However, whereas research overwhelmingly suggests nutrient losses as a result of canning processes, the effects of freezing on nutritional value are more varied. Freezing fruits and vegetables can “promote the retention of nutrients” or even make nutrients, such as carotenoids, more available by breaking down the cellular structure.^{25,26} However, as indicated by the study on blanching, significant nutrient losses occur during the processes that proceed freezing. Additionally, nutritional content decreases when produce is not frozen immediately after it is picked. Research indicates that fruits that are flash frozen (frozen immediately after being harvested) reveal “higher content of ascorbic

¹⁹ B.D. Ezell and M.S. Wilcox “Loss of vitamin C in Fresh Vegetables as related to Wilting and Temperature.” *Journal of Agriculture and Food Chemistry* 7 (1959): 507-509.

²⁰ Seung K. Lee and Adel. A. Kader “Preharvest and Postharvest Factors Influencing vitamin C Content of Horticultural Crops.” *Postharvest Biology and Technology* 20 (2000): 207–220.

²¹ Audrey H. Ensminger et.al. “Preservation of Food” in *Food and Nutrition Encyclopedia* vol. 2 (1983): 1852.

²² Ibid.

²³ J.R. Wagner, F.M. Strong, and C.A. Elvehjen “Nutritive Value of Canned Foods: Effect of Commercial Canning Operation on the Ascorbic Acid, Thiamine, Riboflavin, and Niacin Contents of Vegetables.” *Industrial and Engineering Chemistry* 39, no. 8 (1947): 990.

²⁴ B.H. Chen, H.Y. Peng, and H.E. Chen “Changes of Carotenoids, Color, and Vitamin A Contents During Processing of Carrot Juice.” *Journal of Agriculture and Food Chemistry* 43 (1995): 1912-1918.

²⁵ Audrey H. Ensminger et.al. “Preservation of Food” in *Food and Nutrition Encyclopedia* vol. 2 (1983): 1852.

²⁶ Ben Kallen, “Raw, Cooked, Frozen or Canned?,” *Men's Fitness* 18, no.9, Sept. 2002, 39.

acid and anthocyanins... than fruits frozen after a five to six hour delay.”²⁷ Therefore, freezing can be beneficial for preservation of fruit and vegetable quality, but only if produce is frozen immediately; “postharvest delays in handling vegetables to be processed (frozen) are known to produce deterioration of flavor, texture, color, and nutrients.”^{28,29} Although freezing is preferred over canning, local foods arrive fresh and do not need to be canned or frozen; therefore, they do not risk losing as many nutrients.

Lastly, locally produced food would not have to be picked before it reached full maturity. This has important implications because “maturity is one of the major factors that determines the compositional quality of fruits and vegetables”.³⁰ Research showed that tomatoes which ripen on the vine until table ripe contain up to 31% more Vitamin C than tomatoes picked when premature. Kader also found that when green tomatoes were harvested and then ripened off the plant at 20°C to table-ripeness, they still contained less vitamin C than tomatoes harvested at the table-ripe stage.³¹ Although fruit picked prior to full maturity continues to ripen and accumulate vitamin C, the increase is much greater for those fruits left on the plant. However, even though most fruits and vegetables contain their maximum nutritional content when mature, most producers harvest their produce before it reaches this stage in order to facilitate shipping and handling.³² If producers delivered their commodities shorter distances, they could allow produce to ripen naturally, thus promoting the adsorption of more nutrients.

Local produce travels shorter distances, is stored for shorter periods of time, and can thus be harvested when it is mature instead of green. As a result, research indicates that local produce contains more nutrients. Furthermore, as the “buy fresh, buy local” campaign advocates, locally grown fruits and vegetables make their way to consumers

²⁷ W. Plochanski, “Strawberries- Quality of Fruits, Their Storage Life and Suitability for Processing. Part VI. Quality of fruit frozen immediately after picking or frozen after cold storage under controlled atmosphere conditions.” *Fruit Sci. Rep.* 16 no. 3 (1989):127.

²⁸ Grete Skrede, “Fruits,” in *Freezing Effects on Food Quality*, ed. Lester E. Jeremiah (New York, NY: Marcel Dekker Inc., 1996), 237.

²⁹ M. Pilar Cano, “Vegetables,” in *Freezing Effects on Food Quality*, ed. Lester E. Jeremiah (New York, NY: Marcel Dekker Inc., 1996), 250.

³⁰ Seung K. Lee and Adel. A. Kader “Preharvest and Postharvest Factors Influencing vitamin C Content of Horticultural Crops.” *Postharvest Biology and Technology* 20 (2000): 211.

³¹ L.A. Betancourt, M.A. Stevens, and A.A. Kader “Accumulation and loss of sugars and reduced ascorbic acid in attached and detached tomato fruits.” *J. Am. Soc. Hortic. Sci.* 102 (1977): 721–723.

³² I.L. Goldman, A.A. Kader, and C Heitz “Influence of Production, Handling, and Storage on Phytonutrient Content of Food.” *Nutrition Reviews* 57, no. 9 (1999): S49.

faster and are consequently fresher.³³ Sixty-six percent of Grinnell students believe that freshness affects nutritional value. Freshness corresponds to taste, and local foods are not only more delicious, but also more nutritious.

³³ Food Routes Network, <http://www.foodroutes.org/> (accessed May 15, 2006).

Chapter 4: Dining Services Logistics, Local Foods Outlook, and Suggestions for the Future

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4.1: Dining Service Logistics

In this chapter, we provide a quick overview of Dining Service's operation, the basic logistics involved in incorporating additional local food into the dining hall, and an assessment of the outlook of Dining Services administrators on local food usages in the dining halls. Additionally, we identify the different constraints faced by Dining Services, as well as provide recommendations on how to overcome these constraints. Lastly we offer suggestions for how Dining Services could make local foods a more integral part of the Grinnell experience, such as providing information about where local items that are served come from and how the College can play an important role in the local food system.

To incorporate more local food into Dining Services' operations at Grinnell College, many facets of logistics need to be taken into account. Logistics refers to delivery, processing, and service of food to the campus, as well as the institution's financial and legal obligations. Logistics is an important aspect of incorporating more local food into Grinnell's operations since it is part of the actual day to day operations of the College's food service. One of the main reasons that the College's previous partnership with local farmers failed is that the farmers did not fully understand the needs of the College. Accordingly, many mishaps occurred which ultimately led to the reluctance of Dining Services to continue to seek local produce. According to Terry Waltersdorf, Quad¹ manager, some of these mishaps include farmers delivering to the College at inconsistent times; bringing produce in plastic bags; failing to deliver an agreed upon quantity; and submitting invoices written on napkins. These errors point to the importance of communication between Dining Services and producers as well as serving as examples of what producers should not do.

¹ Quad and Cowles are the two dining halls on the Grinnell College campus.

Overview

During the school year, Dining Services serves an average of 2,600 meals a day. This number includes Grab & Go, but not the Forum Grill, F/X or catering.² Also, Dining Services operates throughout the summer, providing meals during special events and camps held on campus. While the number of meals served during the summer is much smaller, they provide an additional opportunity for the use of local food.

When exploring ways to incorporate additional local food into the menu, three important aspects concerning Dining Services should be considered. First, Dining Services is an independent operation of the college. The fact that the food provider is a branch of the college allows for the implementation of evolving college policy much easier than if the College used a corporate provider such as Armark. Furthermore, the President considers the fact that the college has an affiliated independent dining services as fostering local business. Second, Dining Services already uses some local food when available for example eggs from cage-free hens from Farmers Hen House in Kalona, Iowa. However, locally sourced food constitutes only a small percentage of what Dining Service serves³, and amount could certainly be increased if the proper steps are taken. These steps will be further explored later in this report. Third, Dining Services will have a new home next semester as it moves out of the Cowles and Quad dining halls and into the new Joe Rosenfield '25 Campus Center. In addition to this new location, Dining Services plans to introduce a marché-style dining⁴, which means more choices daily on what to eat, and perhaps additional opportunities for Dining Services to incorporate local food ingredients.

Logistics

As mentioned above, Dining Services does serve some locally sourced food. However, the local food they use does not include any substantial amounts of fresh produce or animal products. Dining Services in the past has tried to incorporate these types of items into the menu, but the relationship established between the College and producers was unsustainable. In this section we will describe the basic framework of

² Grab and Go is a sack lunch meal option; the Forum is a café on campus owned by Grinnell with F/X being a small store of smaller items such as granola bars and drinks.

³ Local food makes up 5.8% as calculated in the report by Eli Zigas.

⁴ Marché dining style can be described as multiple made-to-order food stations. Also check <http://www.grinnell.edu/Offices/dining/dining2006cctransition/marche/>

needs that would allow Dining Services to incorporate more local food into the menu. These needs can be categorized under three basic ideas: consistency, professionalism, and reliability

A producer delivering to the College must do the following things:

- He or she should be able to consistently deliver an adequate supply of food at a competitive price.
- The delivered item should be attractive, have no excessive amounts of dirt, and be consistent in size and shape so that, if necessary, it could fit through the Dining Services processing machinery.⁵
- Product should be delivered in consistently sized and shaped boxes. Since inventory is taken by the case, each delivery needs to have the same weight so the cooks can easily know how much food they made. Although boxes will be an additional expense for the producer, Dining Services will return the used boxes at each delivery to help cut down on this expense.
- Each producer must have a federal ID number for tax purposes so the college can make sure the food ordered can be written off as an expense.
- Consistent and professional invoices are needed so that Dining Services can keep information on file for accounting purposes, be able to identify the type and quantity of each purchase, and facilitate paying the farmers.
- The legal responsibility of an institution to protect its consumers requires that each producer have liability insurance in case a bad product causes harm. Liability insurance is required when selling to any institutional buyer, so that the buyer is not held liable for any damages that may be related to the product.
- If a producer is unable to make a delivery, he or she must notify Dining Services as soon as possible so Dining Services will have ample time to replace the product with a comparable one ordered from another distributor.

⁵ For such things as tomatoes, Dining Services uses equipment to slice them, and the hole in the machine used is only one size. Thus the tomato cannot be too large or too small.

4.2: Outlook and Recommendations:

Introduction

This section addresses the Grinnell College administration's current outlook and concerns regarding an increase in the use of local foods in the College's food service operations, a discussion of some of the constraints faced by Dining Services, and recommendations for increasing the amount of local food that could be available after the move to the Joe Rosenfield '25 campus center. The sections that follow will cover the positive effects of the local foods independent study, budget concerns of dining services, the possible need for local foods coordinator, the importance of communication with producers, and recommendations on using more local food in the menus.

Positive Engagement

Throughout this project, Dick Williams, Director of Dining Services, and his staff -- Scott Turley, Terry Waltersdorf and Jeanette Moser -- as well as president of the College Russell Osgood and vice president of College Services John Kalkbrenner, have shown they are willing to explore an increase in local food purchases, and that they are responsive to student input. The conversations we had with these individuals provided basic information about what the College does and how it views the operation under its control. We believe that this semester-long project has had a positive influence on Dining Services, and they deserve the greatest appreciation from the student body for their arduous task of feeding the campus. Initially many of the local food activists found the attitude of the College to be quite pessimistic; however, this view needs to be adjusted in light of the current state of positive engagement the local foods independent study achieved. Nevertheless, it is important to look forward and to consider what more can be achieved.

The attitude of the College's administrators is ultimately the key for success in securing more local foods in the dining hall. We hope that a positive change in how administrators view local foods can occur so that Grinnell College, the Grinnell community, and those who work the land can envision Iowa as the food capital of Iowa.

Budget Concerns

Dining Services sets its budget two years in advance based on expenditures in previous years for labor, equipment, and food⁶. Student meal plans pay for Dining Services. Currently, Dining Services is working under a policy that does not allow the director to hire more employees. Employees, as in all business, are a major, yet vital, expense. Since Dining Services estimates an increase in labor cost for processing local foods, a change in policy by the vice president of student services might be considered to allow for more workers, if necessary.

Although the cost of locally produced food is in some cases higher, there is also evidence to suggest that in other cases the cost will be comparable or lower. Furthermore, the survey of student opinion conducted as part of this course indicates that a majority of students surveyed would be willing to pay more for local foods if necessary.

Local Foods Coordinator

Realistically, the Dining Services manager presently in charge of ordering food would not have enough time to effectively communicate with a number of local producers. One way for Dining Services to increase the use of local food would be to hire a local food coordinator. Such a coordinator would provide producers with a consistent and knowledgeable contact at the College. The coordinator would keep track of all orders to ensure the cooks have what they need when they need it, streamlining the sourcing process which, when dealing with multiple suppliers, is considerably more time consuming than with SYSCO's centralized system. Although adding a local food coordinator or hiring additional employees would be an added expense for the college, it would affirm the College's mission statement on local foods and its values of fostering strong healthy communities.

Doing Things Differently: Recommendations on the Local Foods Continuum

While discussing local food issues with a number of individuals who have focused on creating an integrated local food system, including Kamyar Enshayan of the University of Northern Iowa, Dr. Howard Sacks of Kenyon College, and Lawrence Gamble of the Fairfield based Sustainable Living Coalition, a number of common themes

⁶ The college subsidizes Dining services space, energy and water costs, though the student room and board fees. The Dining Services budget is responsible for professional and student labor, equipment and food expenses.

have emerged. Each of these individuals said that a locally-integrated food system can be achieved through hard work and a willingness on the part of producers and institutional buyers to do things differently. As Mr. Gamble pointed out, it is possible, even in Iowa, to have fresh produce on the table all year round. In the winter months, however, one's diet would be limited to hearty greens (turnips, kale, spinach, etc.) that could be raised in a greenhouse, stored squashes and tubers, and produce from the summer preserved either by flash freezing or canning. A complete local food system could be achieved, but this is not where Dining Services administrators see their operations heading. Such a food system would require a change in the eating habits of the student body. Terry Waltersdorf said, "we could serve three or four squash dishes for a number of meals, but if students don't eat it then that is a waste of money and food."

A fully integrated local food system is not necessarily our goal with this project. Rather, it marks one end of the food system continuum -- nearly one hundred percent locally sourced items -- while the other extreme is to use none. Currently, Dining Services' food offerings lie much nearer the lower end. There is much room for improvement.

Even though Dining Services uses more than a dozen food suppliers, SYSCO delivers the majority of the food used daily in the dining halls. A large corporation such as SYSCO has many advantages for an institutional buyer. It can deliver thousands of items that are of guaranteed quantity and quality with a day's notice. They have standard packaging and provide easy ordering and invoicing of deliveries. John Kalkbrenner stated that it is more cost effective for the college to use such a well established system than to hire an employee responsible for sourcing and ordering food. The ease of the current distribution system makes any changes toward a more locally integrated one seem daunting. In light of this fact we recommend that Dining Services:

- Use only a limited number of local items, such as apples, potatoes, tomatoes, greens, or squashes, while they are available locally during the one to two month period when the growing season overlaps with the academic year. During the seasons these items would be ordered from local producers instead of SYSCO.
- Communicate with local producers to reduce the extra work that buying locally often involves. Dining Services could invite producers to see their facilities and

explain in detail their day-to-day operations, as has been done at Kenyon College.

- Provide producers with a list of targeted items prior to the growing season and make a commitment to purchase their products at fair prices.

Producers, in turn, would be responsible for communicating their needs to Dining Services prior to planting in order to avoid any miscommunication once the crops are in the ground. If some external factor, such as the weather, causes crop failure or a decrease in available product, producers would notify Dining Services in a timely manner so that Dining Services could order those needed products from SYSCO.

A locally-integrated food system is not an all or nothing game, but a continuum. During those times of the year when local foods are readily available, the college could benefit by incorporating itself into the local food system. Once this has been done, the discussion could move towards extending the season through green houses and food preservation.

Learn from Past Mistakes

Previous experience with locally produced foods has affected the outlook of Dining Services administrators. Their concerns about inadequate supply and spotty communication are reasonable; however, we hope to create an effective local food system in which these concerns would be addressed from the outset. In the past, producers failed to deliver quantities that they had promised. Such occurrences are examples of what producers must avoid in order to having a working relationship with the College. Since Dining Services has a clear idea of its needs and producers appear willing to produce the quantities needed by Dining Services, then let the past failures serve as examples of what not to do so that the model for successes is clear in the minds of all those creating a local food system.

Models for Success

Seasonally flexible menus incorporated into the new marché dining structure could provide an ideal opportunity to incorporate more local food items into the diets of Grinnell students. In the past, the college's chef was responsible for writing menus a month or two in advance and then cycling these menus, staggered by two week intervals, through Cowles and Quad dining halls. The two week delay allows students the

flexibility to choose between a greater offering of food. Dining Services consistently cites advanced menu planning as an obstacle to using more local foods, assuming that local foods will only be available on short notice. However, the problem of short notice would be solved by initial discussion of a list of targeted foods and a set delivery schedule from producers.

- It is difficult to incorporate local food items into the set menu, therefore space on the menu should be left open so that local foods can be included when they become available.

- Even if a producer is unable to deliver the full quantity of produce he or she had promised, Dining Services could use the amount that is available. For example, if Dining Services needs four cases of tomatoes in late August, but the producer only has three, the manager in charging of purchasing can still get the three local cases of tomatoes and still order one from SYSCO.

- Currently, Dining Service's menus do not allow the incorporation of locally produced food items that become available during the growing season. For example, if the vegetable option were to be broccoli and cauliflower every Tuesday, and green beans every Wednesday, then there is an advantage to knowing this so that these items could be ordered from SYSCO every Monday. However, if a farmer delivers spinach on Tuesday, then the vegetable option on Tuesday could be changed to spinach, or the spinach could be used on Wednesday. If the farmer says that's all the spinach for three weeks but next week she will have zucchini, then the options slated for Tuesday and Wednesday could be left open so that, depending on availability a local item could replace the non-local one.

- Instead of having each item on the menu known weeks in advance, certain items could use local ingredients when they are available. Some items, such as apples and pears, could be utilized without concern to the set menu as these items are offered at every meal.

With the marché dining system to be implemented in the new campus center, the menu items for each station could provide many opportunities to utilize more local food. Instead of having to prepare enough food to fill one of the main lines at Quad or Cowles, the cooks would only need to prepare as much as they are expected to serve at a given

station. On the pizza station, for example, a topping may be local herbs or green peppers when available, or on the salad bar local greens could be used in addition to the greens ordered from SYSCO.

Adjustment Period

Dining Services is excited about moving into their new site of operations. However, they expect to be confronted with many difficulties associated with a change in venue and service styles. They do not know how students will react or which stations will be the most popular. We understand that our promotion of local foods could add to the overall level of anxiety faced by Dining Services at this time. For that reason, we understand that during the coming year it may not be possible for Dining Services to place as much emphasis on local foods as it otherwise might. Nevertheless, despite the inevitable adjustment period, other aspects of integrating a local food system could continue, such as farmers organizing a co-op and preparing for the next season.

4.3: Conclusion

President Osgood pointed out during one of our meetings that some claims about local foods, such as freshness, and healthfulness, may not always be the case. Like all food systems, there are positives and negatives to local foods. He noted, for example, that the corn and soybeans raised throughout Iowa, and which serve as economic engines of the state, are fed to animals, and the meat from these animals could be considered local food in some sense. On the other hand, he also said that the overall premise that local foods will benefit the local economy and result in fewer food miles is sound and hard to disagree with. His comments raise an important and fundamental aspect about local foods and an integrated local food system:

The consumers of local foods should have a vested interest in making sure that the food was raised in a manner congruent with their values. Therefore, the college recognizes the role it can have in affirming its values by choosing where and with whom it spends its money. Currently the college is doing good things and does support local enterprise, but it could do more.

The college could:

- Play an active role in helping farmers organize; as well as encourage more sustainable farming practices.
- It could do what the Rural Life Center has done at Kenyon College and help finance a distribution center for local foods.
- In the dining hall, it could find areas where local foods fit into what they already provide such as increasing the number of local food special dinners.
- Dining Services could provide more local items during the summer when hosting various summer programs. Since the summer is the peak of the Iowa produce season and the college will have less mouths to feed, providing the necessary amounts of food will be less challenging and will still have enormous benefits to the community.
- Again, the college should think of small steps and focus on only a few items that are primarily sourced locally. During early fall many vegetables could be sourced locally and throughout the year animal products could be targeted.
- Although a large percentage of surveyed students are already aware of the benefits of local food, Dining Services could further educate students about local foods so that the dining hall becomes a place of learning and community.

Overall the college is moving in a positive direction, but lingering doubts about the benefits of local food remain. These doubts can be dispelled by communicating early with farmers and letting them know Dining Services' needs. Working with the farmers as partners instead of as competitors will foster mutual respect. Ultimately Dining Services could become more creative and serve more seasonal produce in imaginative ways. As a food service business they have the means and past experience of serving locally sourced foods. Working with farmers, Dining Services could begin to take the first steps to recreating a local food system that meets its needs.

Chapter 5: Report from the Interviews with Producers in the Grinnell Area

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Our section of this project focused on the producers that could potentially supply Grinnell College Dining Services with food. We define “producer” as anyone who grows or raises any type of food item. To guide our research we identified some overarching goals we would like to achieve by linking Dining Services with local food producers:

- Fresher and more delicious food in the dining hall
- More food raised in ways that are sustainable and in harmony with the environment
- A reduction in fossil fuel consumption in transporting and processing food
- Support of the local economy
- Increased opportunities for farmers
- Better understanding in the community of where food comes from
- Stronger relationships among producers and between producers and Dining Services.

When initially approaching the question of finding local producers, we faced the same challenge as other members of our class: defining local. Although Grinnell Dining Services defines local as the entire state of Iowa, we recognized that this did not always equate to lowered total food miles, support of local economies, and increased freshness, which were some of the goals of our project. For example, lettuce grown in Iowa first

travels to Minneapolis, Minnesota, for processing and then back to Iowa for sale, thus increasing the amount of total food miles. Therefore, we wanted to narrow our definition of local. We used a concentric ring model to define local, with Grinnell at the center. In this model, a series of concentric rings surrounding Grinnell define the source of food as more or less local. We turned to a local food organization, the Grinnell Area Local Food Alliance (GALFA), which defines local as Grinnell's county, Poweshiek, and the eight surrounding counties. We adopted this area as the center ring of our study and began our research there.

Based on our individual experiences with farmers markets, material presented to us in class, and the prevalence of food organizations in the area (including the Grinnell Compass Plant Community Supported Agriculture group and GALFA), we knew there were producers that existed in the counties we defined as the center ring of our local food model. To lay the foundations for our research, we used some of the material gathered by GALFA and the Center for Prairie Studies at the College, including the GALFA directory of area farmers ("Directory of Grinnell Area Producers Who Market Locally"). We used the 2005 version of this directory to begin our search for producers interested in marketing to the College Dining Services.

When we contacted producers, we hoped to assess their operation and their interests in and prospects for marketing their products to Dining Services. We initially contacted producers by phone, and we created a questionnaire to help guide our conversations with them (see Appendix L). This included questions about the farm's location, what food items they produced, methods for producing these items, how they currently sold their products, and their interest in selling to the College. We first selected

producers in the directory who grew crops that Dining Services already used and who were listed in the directory as selling their items wholesale; we assumed that wholesale producers could grow enough volume of food items to supply the College. However, after speaking with producers and leaning of other growers who would be interested in selling to the college, we contacted other producers. In total we talked with thirteen producers from the directory, two area producers not currently in the directory, and a local meat locker, all of which were from in and around Poweshiek County (see Appendix M and N).

In our conversations with producers we discovered that they grew a wide array of food items used by Dining Services. Produce, meats, grains, nuts, honey and herbs are all produced in sufficient quantity for Dining Service's needs, but there is a more limited supply of dairy, eggs and baked goods (see Appendix O). We also found that producers grow a variety of items not commonly used by Dining Services, including goat meat, spelt, kale, apple cider, pumpkins and others. Most of the producers we contacted grow vegetables and fruits. Based on their current operation, many of these producers can not individually grow the volume of produce that the College uses; however, collectively the producers grow more produce than the College can use. The cost of local produce is often lower than or competitive with the cost of produce from SYSCO, the College's current main supplier. In addition to those who grow produce, several other producers also raise livestock for meat. Beef and pork, which Dining Services uses regularly, are raised in large quantities, but chicken is not currently being grown in the amounts Dining Services uses. There is an extra step inherent to the purchase of meat items that produce does not have to undergo: butchering. To investigate this issue we visited Dayton's Meat

Locker in Malcom, Iowa. Assuming that local meat would have to be processed here, we calculated its cost to be significantly higher than the meat Dining Services currently buys through SYSCO. Other than produce and meat, grains, nuts, honey and herbs were all found close to Grinnell, and producers of these individual crops could combine to provide the College with the volume of products required. Although few products are certified organic, many of them practice sustainable agriculture methods.

Several major themes emerged when talking to producers in and around Poweshiek County. First, many expressed interest in expanding their current markets to include a buyer like the College. Even though some producers already have consistent buyers and some do not, all responded positively to this question. Some of the producers can already accommodate the College without having to change their operation, while most of those who cannot provide the quantity or type of food item needed by Dining Services are willing to modify their farms. Another common theme among producers concerns the organization of a cooperative. Although most producers like the idea of forming a cooperative that could sell food items to the College, many of them are either unwilling or unable to commit the time and energy necessary to lead such an effort. Most producers also do not have the facilities to store food for the College. A final trend we found is the producers' reluctance to enter into contracts with the College, although many express interest in a more flexible form of marketing agreements.

After looking intensively at local producers and processors, we expanded our search to include the entire state of Iowa. In this search we looked at larger suppliers that produced or sold food raised within Iowa. The reasons for expanding our search were several. In some cases, we wanted to look outside the center of the concentric ring model

because some items, such as dairy products, are unavailable closer to Grinnell. Dining Services currently uses Roberts Dairy of Omaha, a regional supplier whose cows are located in Nebraska. However, we wanted to reduce the dairy food miles further. As a possible alternative to Roberts, we investigated the Swiss Valley Farms dairy cooperative based in Dubuque, Iowa. This organization is an Iowa-based company that has the capability to deliver the quantity and variety of dairy items needed by Dining Services. Swiss Valley has also earned a number of international awards for its products, demonstrating their high quality standards. Additionally this company is farmer-owned, which aligns with our goals of supporting local farmers. After scheduling a meeting between Dining Services and the Swiss Valley Farms sales representatives, we learned that approximately 48% of the Swiss Valley producers/owners are located in Iowa, while the others are raised in Wisconsin, Illinois and Minnesota. We also learned that Swiss Valley already delivers to three schools in Grinnell and could easily make a delivery to the College. Dining Services has a longstanding relationship with Roberts Dairy that they greatly valued, but based on Swiss Valley's strengths, is considering switching to Swiss Valley.

In addition to dairy products, another food item that is difficult to source locally is meat. After learning of the complications and high cost of meat raised close to Grinnell for Dining Services, we decided to research meat producers across Iowa. We located Wholesome Harvest and Gateway Natural, both companies that organize Iowa meat producers. The meat items from these companies align with our goals of locally raised food, supporting Iowa farmers, and high quality products (organic, grass fed animals). Although the company representatives were excited about our project, ultimately the

package sizes they offered and their high prices, compared to the College's current expenditure on meat, deterred us from pursuing this option further.

Our decision to expand our search to include larger suppliers also reflected a desire to maintain the efficiency of Dining Services' current model of food purchasing. The College currently buys its food through SYSCO, a national food service distributor. Dining Services values the convenience of SYSCO because of the availability and variety of products offered and the reliable delivery system. Dining Services receives a delivery from SYSCO twice a week; SYSCO provides the College with professional invoicing and is usually able to guarantee the availability of products ordered. In order to preserve this distribution model as much as possible, while using local food, we turned to United Natural Foods, Inc. located in Iowa City. United is a natural and organic foods distributor that offers some locally produced food items from the state of Iowa. However, United mostly works in food retail rather than food service, so their package sizes often proved to be too small. Also, their ordering system is too inconsistent and their prices too high to effectively meet the needs of the College.

After investigating producers or suppliers within the center of our concentric ring model and the state of Iowa, we identified some of the major challenges that producers face when marketing to the College. After attending a meeting between several willing producers and two Dining Service staff members, the challenges for both producers and Dining Services became clear. From the producers' standpoint, the most prominent challenge is communicating with Dining Services. Many producers do not understand Dining Services' perspective on using local food, nor do they understand their needs. The responsibilities of Dining Services include feeding hundreds of students on a daily

basis and catering special events; as a result, they have to run their operation efficiently to fit within labor, time and budget restraints. A supplier such as SYSCO helps Dining Services meet the demands of the College. Producers are often not aware of the difficulties Dining Services faces.

After opening the dialogue between producers and Dining Services, the second challenge for producers arises: the logistics of supplying an institution. If Dining Services cannot alter current buying and delivery processes, then producers need to mirror SYSCO's methods of selling to the College as much as possible. For example, SYSCO's practices include: one delivery for all food items, a reliable delivery schedule, a single invoice, the use of standard packaging, and consistency in size, shape and quantities for food items. In addition to these basic requirements, producers would also need to meet legal specifications for selling food to institutions, for example adhering to meat inspection laws. Furthermore, producers would need to work with an institution whose schedule does not completely coincide with the growing season, only leaving a few months to provide seasonal crops to the College.

A third challenge for producers relates to the large volume of food the College consumes. While some food items can be easily grown by a single producer, like honey, beef and apples, many food items such as tomatoes, chickens and lettuce are used in very large quantities. Based on area producers' current operations, several of them would have to collaborate to provide a sufficient quantity of a crop like tomatoes. During the process of collaboration, producers would need to decide the type, quantity and timing of each product. While producer collaboration can be an extremely powerful tool for

marketing locally, it is also a time consuming activity that provides yet another potential obstacle for producers.

The final major challenge for producers includes the factors that affect crop success: primarily weather conditions, labor availability and market prices. All of these factors that can limit the success of their crops are largely out of producers' control. This uncertainty does not comfortably fit within the College's relatively rigid food requirements. Although these challenges initially seemed daunting, we found a solution.

By examining past efforts to market local food to the College, looking at peer institutions, and researching institutional buying model¹, we identified the co-op model as a system that would fit into Grinnell's current local food conditions. In a co-op, a group of producers collaborate to meet the demands of an institution like Grinnell College. By collaborating, a group of many small farmers can provide the same sizeable quantity that larger producers can, while still retaining a degree of control over their operation.

We identified several essential steps to take in order to form a co-op in Grinnell. First, producers and Dining Services should meet, ideally in the fall before the next year's growing season, so that producers can learn about Dining Services' needs and can plan crops accordingly. Therefore, with enough advance notice, farmers can pool their resources to provide a wide range of products in sufficient quantities. Then, a later meeting closer to the beginning of the fall menu cycle should be held to finalize logistical details, such as a delivery schedule. The key to this system's success is an intermediary who coordinates the co-op and fosters communication between producers and Dining Services. The intermediary, or broker, can either be a producer, an employee of the

¹ Rich Pirog. "Institutional Buying Models and the Local Food Markets: The Iowa Experience," 5 October 2002, <www.leopold.iastate.edu/pubs/speech/files/100502_cafeteria.pdf> (15 May 2006).

College, or another community member. However, we feel it is crucial for this person to receive some sort of compensation for their efforts to ensure a successful and sustainable co-op. To facilitate communication, producers and Dining Services determined that, ideally, the co-op would have a website that functions as an online ordering system. Producers would use the website to upload a list of available products in advance of the delivery date. Dining Services could then view the current product list on the website and submit their order. The intermediary would then gather the ordered products and make a delivery to the College.

There have been similar attempts in the past to promote local foods in the dining halls. In 2003 producers collaborated to supply the College with produce, in a system similar to the co-op model. There were several strengths to this initial attempt, including excellent quality produce that was reasonably priced and satisfied Dining Services' specifications. The delivery person made a single delivery per week with a single invoice, but the delivery time was inconvenient for Dining Services. The weaknesses of this effort were primarily due to lack of organization and communication issues between producers and Dining Services. Additionally, the producer acting as the delivery person or intermediary received no compensation for her efforts. The combination of these weaknesses led to an unsustainable relationship. We were conscious not to repeat the same mistakes when designing Grinnell's version of the co-op model.

To lay the foundations for a Grinnell co-op, we also gathered information from the buying models of a peer institution. The GROWN Locally Co-op of northeast Iowa provided an excellent example of a sustainable and successful co-op. This group of fifteen producers formed in 1999 by Michael Nash and Solveig Hanson, a 2001 graduate

of Grinnell College, and currently sells to institutions like Luther College and the local hospital, as well as individuals from the community. GROWN Locally has achieved success because of their strong lines of communication between producers and institutions. This is partially facilitated by their efficient and convenient online ordering system. Their example proves that the co-op model for institutional buying is successful in northeast Iowa and could be equally so in Grinnell.

There are many benefits to the co-op model, some of which have been previously mentioned. Successful communication among producers themselves and between producers and Dining Services is essential. The co-op model with an online ordering system and an optimal delivery system has the potential to increase the efficiency and effectiveness of such communication. With one order, one delivery, and one invoice, time and effort can be saved for both producers and Dining Services. The co-op model also promotes an understanding between producers and Dining Services of each other's challenges and strengths, thus paving the way for a more flexible and lasting relationship. Finally, one of the most important benefits of a co-op is the formation of relationships within the community. This model is based on building connections amongst producers themselves and bridging the gap between producers and consumers. Grinnell College has dedicated itself to enriching the lives of its students and supporting the community as a whole. Buying local foods promotes the College's civic and economic involvement in this community.

While the establishment of this co-op model in the Grinnell community will take time and effort, there are other ways to further develop the connection between producers and the College. Strengthening the relationship between producers and consumers

promotes understanding of agricultural processes, environmental stewardship, and community development, which is in line with Grinnell College's social and environmental commitments. To further this relationship, producers could take a more active role in food service and academics at the College. Presentation cooking of their products in the dining halls, individual farm and co-op internship opportunities, and class field trips to farms could have a positive impact on producers and enrich college life.

In turn, the College could actively support producers by helping them confront some of their challenges. The formation of a co-op and the creation of an online ordering system may require capital that producers cannot provide on their own. Some financial assistance from the College, in the form of challenge grants or other types of funding, would greatly increase the chances of the co-op's success. Also, the issue of the school year and growing season schedules could be solved by the addition of greenhouses to farmers' land that would extend the growing season by at least a month in both spring and fall, thus enhancing the amount of locally raised food used by the College.

Greenhouses are expensive, so few farmers currently use them. However, the College could partially fund these types of greenhouses for producers. Financial support would not necessarily have to come from the College budget. Several government and private organizations exist that fund similar community and environment enriching projects. Government funding is available through the Cooperative State Research, Education, and Extension Service (CSREES) of the USDA². In the past the Ford Foundation has offered public market grants that have supported community-farm alliances³. In terms of more locally sourced funding, the Leopold Center for Sustainable Agriculture acts as an agent

² CSREES, <<http://www.csrees.usda.gov/>> (15 May 2006).

³ Ford Foundation, <www.pps.org/pdf/ford_rfp_final> (15 May 2006).

for several organizations, including the W.K. Kellogg Foundation, which strives to enrich Iowa's agriculture and community⁴. A Grinnell-based source of potential funding is the Ahrens Foundation that promotes Grinnell community improvement⁵. The College's aid in establishing the co-op and in greenhouse construction would show a commitment to a local food system.

A mutually beneficial exchange of efforts ensures a strong relationship for the co-op with benefits for Grinnell area producers and the College. Buying local food presents the College with the opportunity for increased press attention. By publicly advertising this unique, socially responsible aspect of Dining Services, the College would increase its appeal to a wider array of students and gain the attention of social, environmental and agricultural agencies, as well as its peer institutions. This project could be advertised on the College's webpage, in their brochures, and through campus tours. On the other hand, producers would also benefit from increased dedication and publicity of the co-op. Producers could reap immediate benefits by increased awareness of local foods in the Grinnell area community, whose members would buy more of their products. Public attention to sustainable agriculture practices and locally raised food also promotes their philosophies toward agriculture and broadcasts this information to a vast audience.

To achieve the goal of forming a Grinnell co-op, two major steps now need to be taken. The designation of an intermediary between Dining Services and producers is essential for the co-op to function. Currently, no producer is ready to permanently take on the challenge of organizing a co-operative. Nor can Dining Services spare an employee for this undertaking, and few community members have the time or resources

⁴ Leopold Center for Sustainable Agriculture, <<http://www.leopold.iastate.edu/about/funding.htm>> (15 May 2006).

⁵ Ahrens Foundation, <<http://www.ahrensfoundation.org/applicationprocedures.htm>> (15 May 2006).

to devote to this project. This matter requires immediate attention before this effort can continue. It is our hope that these issues can be addressed in the near future so that Grinnell students can soon enjoy local foods, and a stronger community can emerge.

Chapter 6: Economic Analysis

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Washington DC

6.1: Introduction

For my economic analysis of Grinnell College Dining Services' relationship with the local food system I set out to answer three research questions:

- 1) What is the economic impact of buying locally grown food?
- 2) What percent of Dining Services' total food purchases are locally-sourced?
- 3) What is the difference in price between select locally- and conventionally-sourced food items?

Over the course of the semester I found that none of these questions could be answered easily. However, my research indicates that Dining Services' contribution of \$70,000 to the local economy, representing 5.8% of its dining hall food purchasing budget, has a larger positive impact on the local, state, and regional economy than the dollars it spends on conventionally-sourced food. Additionally, while locally-sourced food sometimes costs more, other times it costs less. Considered together, the College could not only increase its purchase of locally-grown food without additional expense, but could also save money in the process. Finally, Dining Services does not currently have a system established to track local food purchases, which makes it difficult to evaluate its progress and communicate its successes to a broader audience. To lessen this problem in the future, the College should establish such a reporting system. Included below are explanations of the methods I used to answer the three research questions as well as my findings. From an economic perspective, the College is already contributing to the local food system, but there are cost-effective opportunities for greater involvement.

6.2: The Economic Impact of Buying Local Food

Gauging the economic impact of an institution within a community, region, or state is extremely difficult. Although some colleges of similar size, such as Middlebury College, have conducted economic impact studies, Grinnell College has yet to

commission such a study.¹ Since an economic impact study of Grinnell's local food purchases was far beyond the scope of my project, I instead searched for comparable research and found that little exists. While numerous institutions and organizations have cataloged nominal total local food purchases, I was unable to find any research specifically relating to the economic impact of those purchases.²

Faced with this dearth of research, I have instead focused more generally on the concept of a "money multiplier" as a way of thinking about the economic impact of local food purchases. The theory of a money multiplier is founded on the common-sense proposition that the amount of money that circulates in a local or regional economy is dependent on what percent of the dollars owned in that area are spent in that area. In other words, the more a community makes local purchases, the more money will circulate in the local economy. Figure 1 (below) illustrates the difference between scenarios in which 80% of purchases are made locally versus when 20% of those purchases are made locally.

¹ Richard Heaps and Arthur Wolf (Northern Economic Consulting, Inc.), *The Economic Impact of Middlebury College on The Economies of Middlebury Town and Addison County*, March 2003. Accessed online at: <http://www.middlebury.edu/NR/rdonlyres/FBB709D2-785D-40BC-BF47-62F7AABE86AC/0/ecoimpact.pdf>

According to David Clay, Treasurer of the College and Scott Baumler, Director of Institutional Research, Grinnell has never conducted a study similar study.

² Economic analyses of total local food purchases are more common than studies of the impact of those purchases. One prominent example from Iowa is: Kamyar Enshayan, *Evaluating Economic Impacts of Local Food Purchasing in Several Market Channels in Black Hawk And Surrounding Counties*, April 2005. Accessed online: http://www.valuechains.org/rfswg/Enshayan_0405.pdf

Another example is: UW Madison Center for Integrated Agricultural Systems, "The College Food Project: Economic Impact," <http://www.cias.wisc.edu/economic.php>.

One organization, Sustainable Seattle, is in the process of establishing such a study as part of its Sustainable Communities Multiplier Project: <http://www.sustainableseattle.org/Programs/localfoodeconomy>.

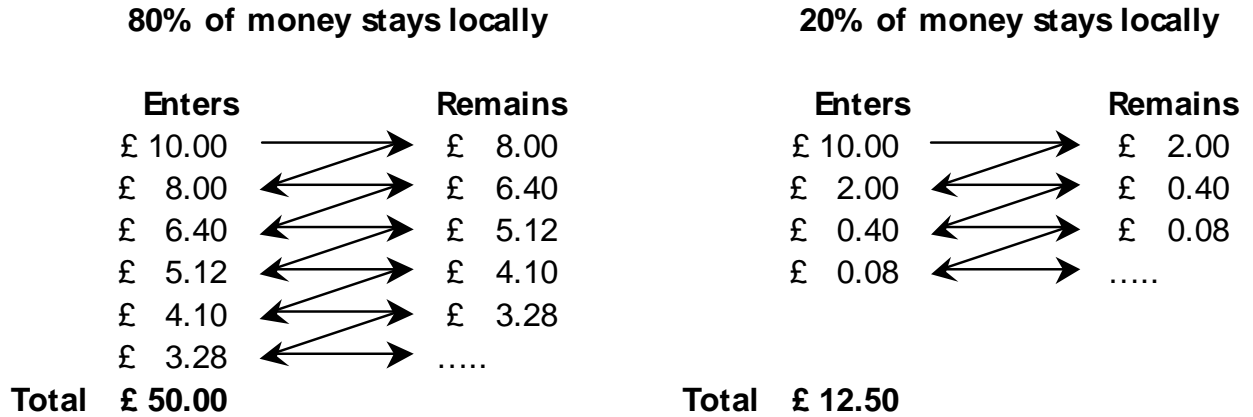


Figure 1: A contrast between two hypothetical scenarios in which different percentages of purchases are made locally. The total represents the cumulative amount of money that remained in the local economy. The study was conducted by an organization in the United Kingdom, which is why the amounts are in pounds. Source: New Economic Foundation, <http://www.pluggingtheleaks.org/>.

Given the lack of available information, it is impossible to know whether 80%, 20%, or some other percentage is the most accurate estimate of the money multiplier. However, despite not knowing the money multiplier precisely, it is plausible to assume that more dollars stay within a local economy that has a strong local food system than in the current conventional food system. That is, Grinnell College can be sure that by purchasing food from local producers, it will be contributing more to the local economy than by purchasing from international distributors such as SYSCO.

6.3: Dining Services’ Locally-Sourced Food Purchases

Information obtained from Dining Services indicates that 5.8% of the College’s dining hall food purchasing budget is spent on locally-sourced food items (see Figure 2, below). In dollar terms, those purchases translate into an estimated \$70,649 spent on local food over the course of a fiscal year (August-August).

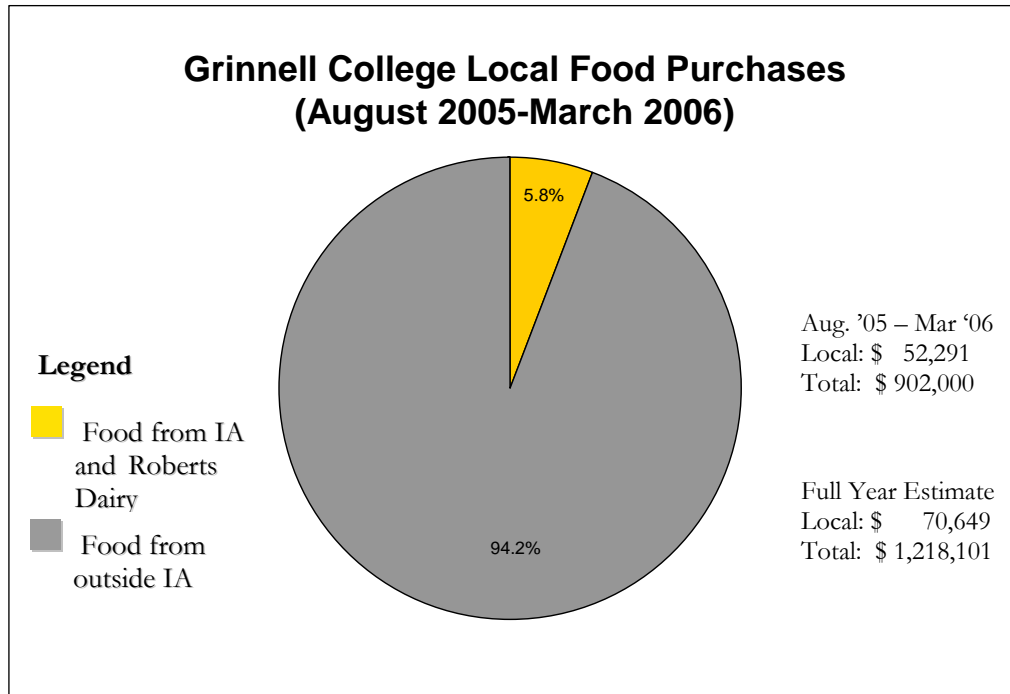


Figure 2

The percentages represented in Figure 2 were calculated from data obtained from Dining Services covering the period of August 2005 – March 2006. This period included the time when cost data was most easily obtained and also because it captured the College's purchases from a recently-chosen local egg provider, Farmer's Hen House in Kalona, Iowa. Local food purchases during that period totaled \$52,291.

In order to estimate the amount of local purchases Dining Services makes in a full year, I combined data from two different time periods. For one fiscal year, from Aug. 2004 – Aug. 2005, Dining Services spent \$1,218,101 on food purchases. The bulk of these purchases, \$1,124,000, were made during the academic year, Aug. 2004 – May 2005. However, after graduation and before the beginning of New Student Orientation at the start of the following academic year, in other words from May 2005 – Aug. 2005, Dining Services spent \$94,101 to provide food for summer programs, including alumni reunions, conferences, and summer camps. Assuming that Dining Services spent the same percentage of its budget on local food during a year-long period as it did from Aug. 2005-Mar. 2006 (the period for which precise figures on local food purchases were

obtained), the yearly purchase of local food for Grinnell College’s dining halls would amount to over \$70,500.³

Some qualifications of this data are necessary. First, the totals described above encapsulate all purchases for the dining halls and Grab & Go (the College’s pre-packaged carry-out meal program.) However, the totals do not include any purchases made for the Forum Grill (the campus cafe), campus catering, or F/X (the campus convenience store). Second, more than half of the \$52,000 worth of local purchases went to buy milk from Roberts Dairy, a company that has operations in Iowa, but whose headquarters and milk-processing facility used for the milk Grinnell receives is located in Nebraska. Therefore, the 5.8% figure was calculated using the broadest definition of local – sourced from the Upper Midwest region.

Finally, at the request of Dining Services, my calculations will not be included in the public version of this report so as not to publicize the prices currently paid by Dining Services. Copies of those calculations, however, were given to Dick Williams and Prof. Jon Andelson.

6.4: The Price Difference between Select Locally and Conventionally-Sourced Food Items

Methodology

My comparison of local and conventional prices was limited to the food items included on the “targeted list” of foods that our group created to make our research more focused and manageable. Given the difficulty of finding prices and potential local producers for certain items, that list was narrowed down further so that, ultimately, I compared fourteen food items.⁴ My findings are included in a table in Appendix P.

To make a price comparison, I obtained a list of quantities and average prices Dining Services currently pays for the fourteen food items and, with the assistance of classmates Kip Kelly and Sarah Fowler, received price quotes from producers for those

³ (Total Food Purchases for Aug. ’04 – Aug. 05) x (percent of local food purchases from Aug. ’05 – Mar. ’06) = Estimate of Yearly Annual Local Food Purchases: (\$1,218,101) x 5.8% = 70,649.86.

⁴ Dairy products were not included in the cost comparison because the College’s current provider, Roberts Dairy, already falls under our broadest definition of local. The alternative dairy distributor that we found, Swiss Valley, is similarly local and operates in the Upper Midwest region. Because both dairies operate locally, there was no data with which to make a comparison between local and conventional.

same food items. The quantities and prices received from Dining Services represented figures from a limited period: January – March 2006. Because this period includes both the end of winter break and all of spring break, the full student body was only on campus for approximately 8 of the 12 weeks in this period. Therefore, this period is best thought of as the equivalent of food purchased for 8 weeks while classes are in session.

Findings

The comparison shows that while some foods cost more sourced locally, others costs less, and there is a wide range of price difference among the various fourteen foods studied. Looking at local foods that cost more, ground beef had the greatest increase in price, 71%, when sourced locally. However, some increases in price were marginal, such as the 1% increase in price for local, cage-free eggs in liquid form from Farmer’s Hen House.⁵ As the table illustrates, the added expense of other local food items fell between the two extremes of ground beef and liquid eggs.

Not all local food items, however, cost more. During the growing season, local squash and tomatoes could offer the greatest savings as they are 66% and 62% less expensive, respectively, than their SYSCO counterparts.⁶ Tomatoes are especially noteworthy because, given the very large quantities Dining Services buys, purchasing them locally could translate into a savings of \$2,325 over a two month period. Red Delicious and Golden Delicious apples were also cheaper locally-sourced, while Granny Smith’s were more expensive.

This cost comparison was focused on nominal price differences and did not attempt to incorporate any added, or reduced, labor costs that might accompany a shift to locally-sourced food into the calculation of price difference. By working with local farmers and communicating specifications, Dining Services can most likely obtain the

⁵ Currently the College purchases most of its eggs from Farmer’s Hen House in Kalona, IA. However, at times, Dining Services must purchase eggs from SYSCO. Therefore, while most of the time egg purchases are already local, because some eggs are still sourced conventionally, eggs were included in this comparison.

⁶ Although green onions have the greatest price savings when purchased locally, the difference between SYSCO’s price and the local producer’s price seems questionably large, though it may be accurate. Because this data may be inaccurate, I have chosen not to use it in my examples.

quality and consistency it needs locally without having to expend significant amounts of additional labor in order to prepare this food.

Another finding that emerged from the comparison is the fact that Dining Services is already paying a premium for food items that align with the College's values when it purchases cage-free eggs from Farmer's Hen House. Earlier this year, Dining Services began purchasing from Farmer's Hen House because it offered more animal-friendly eggs than were available from SYSCO. Dining Services currently pays a 52% premium for these shell eggs from Kalona, Iowa, which demonstrates that Dining Services is willing to pay extra money for food that is produced in a more socially-responsible manner. It is also worth noting that while the shell eggs from Farmer's Hen House are more expensive than those conventionally-sourced, their liquid eggs are cost-competitive.

Thinking Holistically

Faced with budget constraints, Dining Services could simply look at the individual price differences included in this comparison and make decisions based solely on that information. A more holistic approach to utilizing this price comparison, however, is to keep in mind not just the percent differences, but the dollar differences as well. For instance, the 71% increase in price for locally-sourced ground beef would cost Dining Services \$1,690 more than conventionally-sourced beef were it to purchase the same quantity it did from January-March 2006. Looking at this price alone, it would not be pragmatic for Dining Services to purchase local ground beef.

However, during the months of August and September, when students are on campus and tomatoes are ripe on the vine, if Dining Services purchased local tomatoes, it would likely save \$2,325.⁷ The savings from local tomatoes would offset the added cost of local ground beef. In fact, the savings from the tomatoes would be so great that dining services might be able to purchase both local beef and local potatoes, two items that cost more individually, but still save money in total nominal terms (see Figure 3). In actuality, the cost comparisons will probably not work out so simply. However, the data indicates that during the growing season the College may be able to purchase significant

⁷ Dining Services purchased over 2500 pounds of tomatoes between Jan. - Mar. 2006.

amounts of locally-grown food and not only see no increase in costs, but even save money in the process.

Food Item	Conventionally Sourced	Potential Local Source	% Difference	Nominal Diff. (for 2 months)
Ground Beef	NE, MN	Malcolm, IA	+ 70.93	+ 1, 690.32
Red Potatoes	MN, SD, ND, FL, CA	Chelsea, IA	+ 13.38	+ 135.70
Tomatoes	MN, Mexico	Chelsea, IA	- 62.25	- 2, 325.09
			Net Difference:	\$ - 499.07 (Savings)

Figure 3: An Aug.-Sept. example of holistically using price differences to maximize local food purchases.

Tracking the Numbers

It was not easy for Dining Services to obtain the figures needed to conduct this economic analysis. Because similar data will be useful in the future, the College would save time and money by establishing a reporting system to better inventory local food purchases. This system would involve a yearly report that detailed local food items, quantity, vendor, and cost. By tracking this information, the College will not only be able to evaluate its progress in increasing the percent of food purchases that are locally-sourced, but it will also be able to communicate those achievements more easily to current students, prospective students, and alumni – all of whom have demonstrated an interest in a local food system in Grinnell.

6.5: Summary

Grinnell College's participation in a local food system carries with it numerous benefits to the environment, student health, and student satisfaction. But the purchase of local food also benefits the local economy and could save the College money. A significant percentage of Dining Services' current food purchases are locally-sourced, but there is ample room to grow. Some local food items will be more expensive, other will be cheaper. The more the College thinks about both together, the easier it will be to increase local food purchases. In order to evaluate the College's progress and celebrate

its successes, Dining Services should establish a yearly reporting system to track local food purchases. If the College takes these steps, it would move a long way toward reaping the benefits of a local food system it can help recreate.

Chapter 7: Student Opinion and the Campus-Wide Survey

Phoebe Milan Souza
Los Angeles, CA

One of the questions we asked at the beginning of our group independent study project was how interested Grinnell students are in local food and, in particular, in having more locally-sourced food available in the dining hall. We wanted to know this in order to understand how strong the sentiment is for more local food. The stronger the sentiment, the more responsive Dining Service is likely to be to the idea of making more locally-sourced food available. In an attempt to gain a baseline understanding of student interest, knowledge, and enthusiasm, I conducted a survey of student opinion.

I worked with Fred Hagemester, the College's Curricular Technology Specialist, to develop an online census for the students enrolled at the College and living in Grinnell during the Spring semester of 2006. With permission from Jennifer Krohn, the Dean for Student Life, we sent surveys to 1421 current students, and received a response from 742, or 52.2%. Over the course of one week, we sent three reminders, and offered entry into a raffle to encourage participation. The census included demographic, ranking, multiple choice, and short answer questions. It asked students about freshness, nutrition, recognition of the term "local food," and the economic and environmental implications of buying locally grown and processed food (Appendix Q). As a free response survey, there is potential for bias; students who chose to participate may have been supportive of local foods prior to the survey.

There was a fairly even distribution of responses among the four class years ranging from 138 from the junior class to 237 for the sophomore class (Figure 1). The disparity could be explained by juniors studying abroad, or the large size of the sophomore class. Figure 2 shows that the support for local food was consistent among class years ($p = .975$). An overwhelming majority of students, 87%, wanted to see an increased effort by the college to incorporate more locally grown food. Fifteen percent of respondents indicated that they were "actively invested" in making local food a priority at Grinnell, and another 58% are "passively invested." Eating locally implies eating seasonally, which could require some restructuring of the menu to use more seasonal

products. Ninety percent of respondents said that they would be willing to increase menu flexibility in order to use more local food.

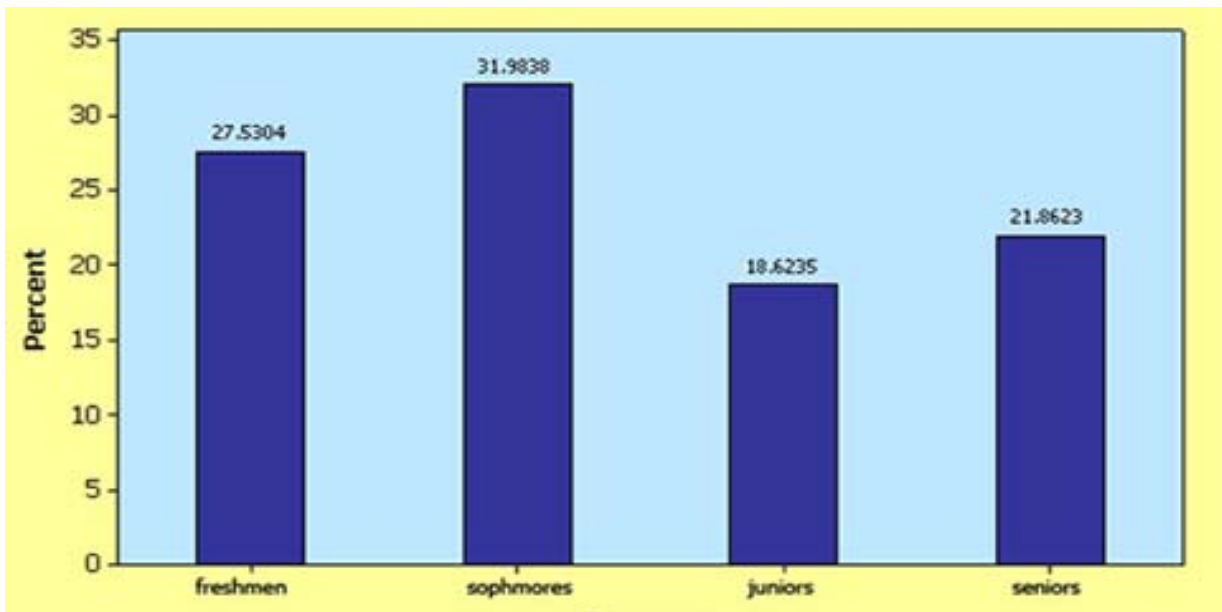


Figure 1: Response by Class Year

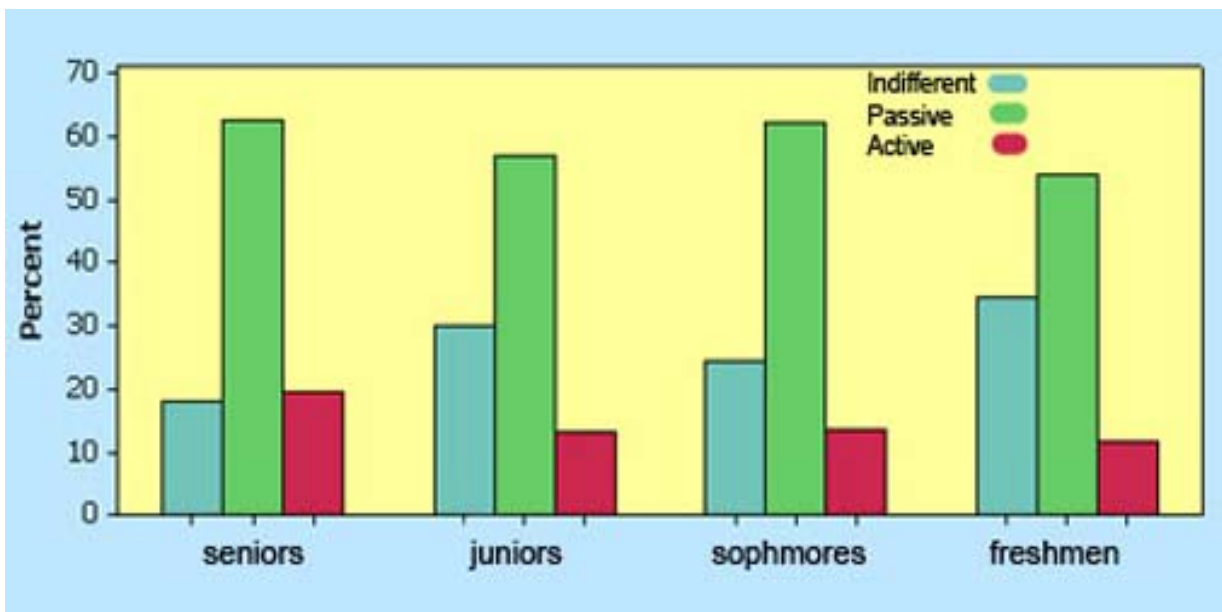


Figure 2: Level of Interest by Class Year

When I was developing the survey questions, the class asked Dick Williams, the head of Dining Services, for his input and feedback. He requested that we include a

question regarding students' willingness to pay more for a dining plan that included local food. As seen in Figures 3 and 4, 65% of respondents stated that they would be willing to pay more to increase the amount of local products in the dining hall. However, as discussed in the section on economics, local food does not necessarily cost more, and in fact, can often be cheaper. There was also a significant positive relationship between students' level of interest in local food and willingness to pay more for it ($p < .0001$) (Figure 5). Lastly, students stating that they personally bought local food were more willing to pay in order to increase local food in the dining hall ($p < .001$) (Figure 6).

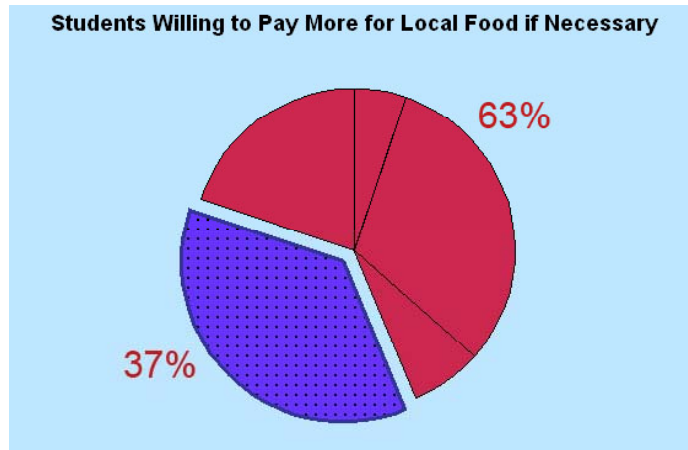


Figure 3: The proportion of students willing (63%) and unwilling (37%) to pay for more local food in the dining hall.

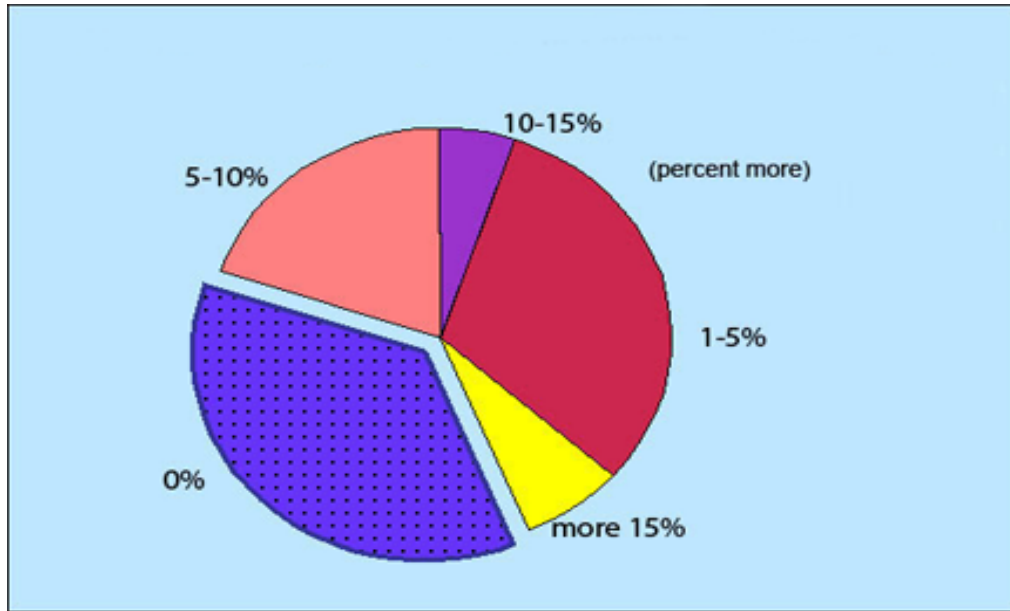


Figure 4: The amount of extra money students are willing to pay for local food in the dining the dining hall.

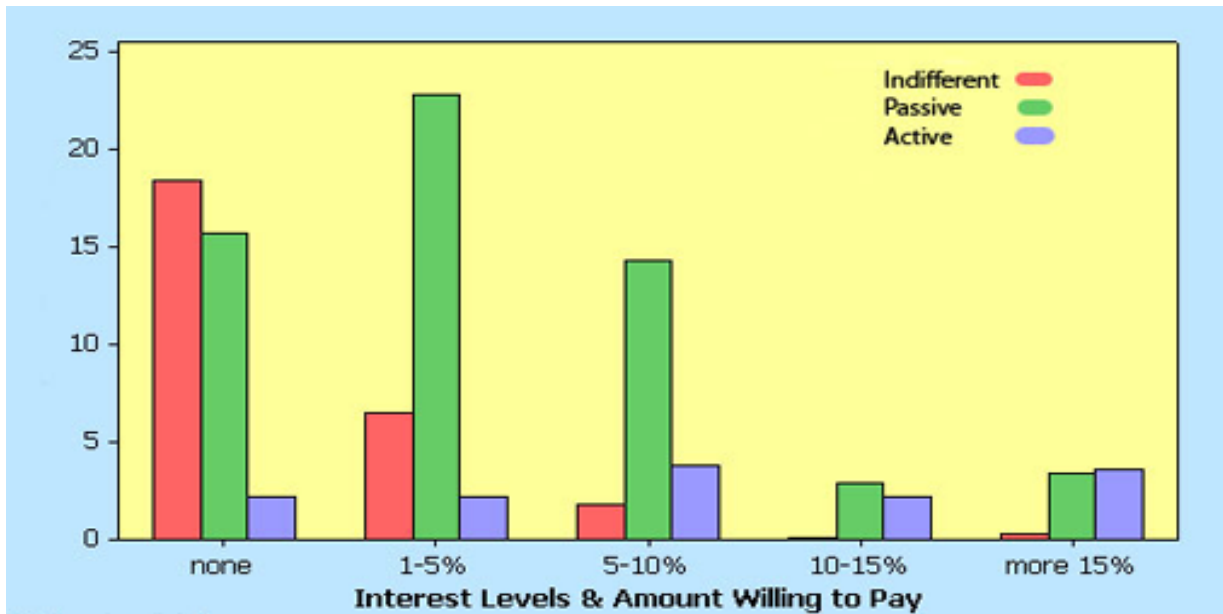


Figure 5: Level of interest in local food and willingness to pay more.

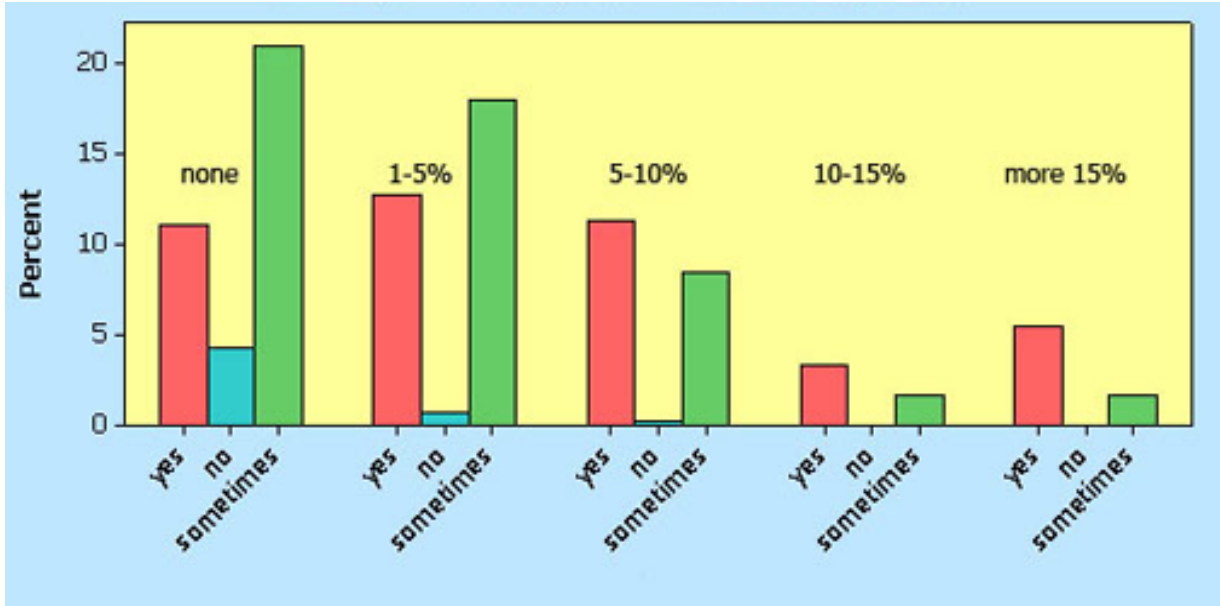


Figure 6: Willingness to pay more for local food & chooses to personally buy local.

The majority of students responded that the freshness of their food matters “a great deal,” and the survey results show that they think “a great deal” about the nutritional value of their food. In addition, well over half of the respondents linked the nutritional value of their food with freshness.

Responses to questions about where and how dining hall food is produced indicated that students thought less about those topics. However, other questions revealed that over 91% of respondents had heard the term local food and provided a variety of personal definitions. This suggests that although students did not necessarily think or care much about where or how dining hall food is produced, they did understand the concept of local food, and were able to provide definitions of it. As Figure 7 shows, students show a greater recognition of the term “local food” the higher their class year, although the differences are not statistically significant. This finding may be due both to education occurring in the classroom and enculturation into Grinnell values, as students become more aware and connected to the local community during their time at the college.

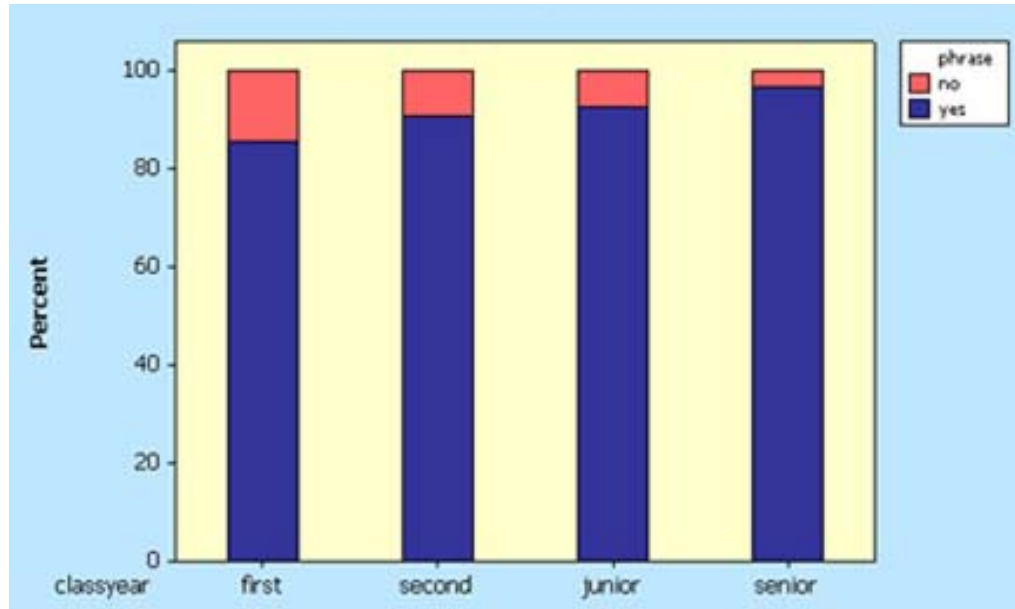


Figure 7: Recognition of the term “local food” by class year

For demographic questions, there was a significant difference in students’ level of interest by region of the country, with the majority of respondents identifying as Midwesterners ($p = .017$) (Figure 8). There was not a significant relationship between students’ interest and home region classified by urban, suburban, small town, and rural ($p = .676$) (Figure 9).

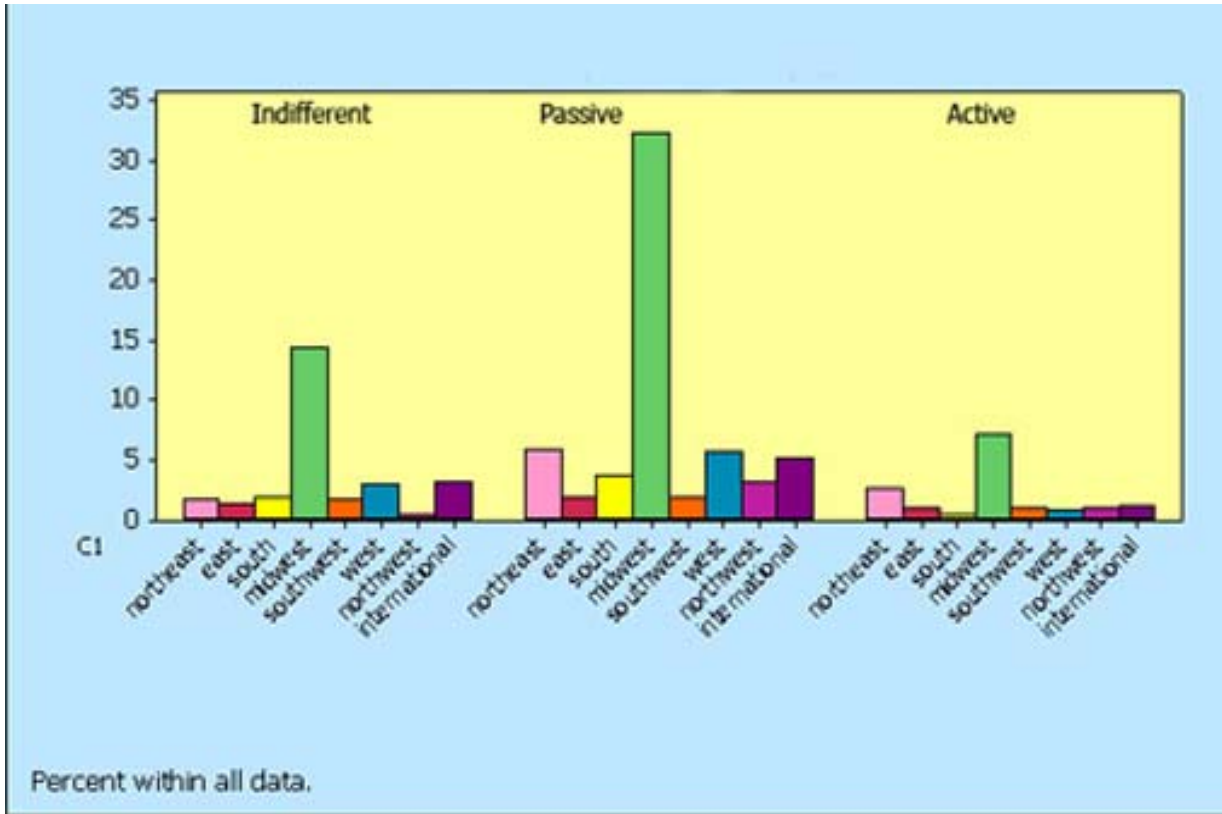


Figure 8: Level of interest in local food based on students' home region.
 (Northeast, East, South, Midwest, Southwest, West, Northwest & International)

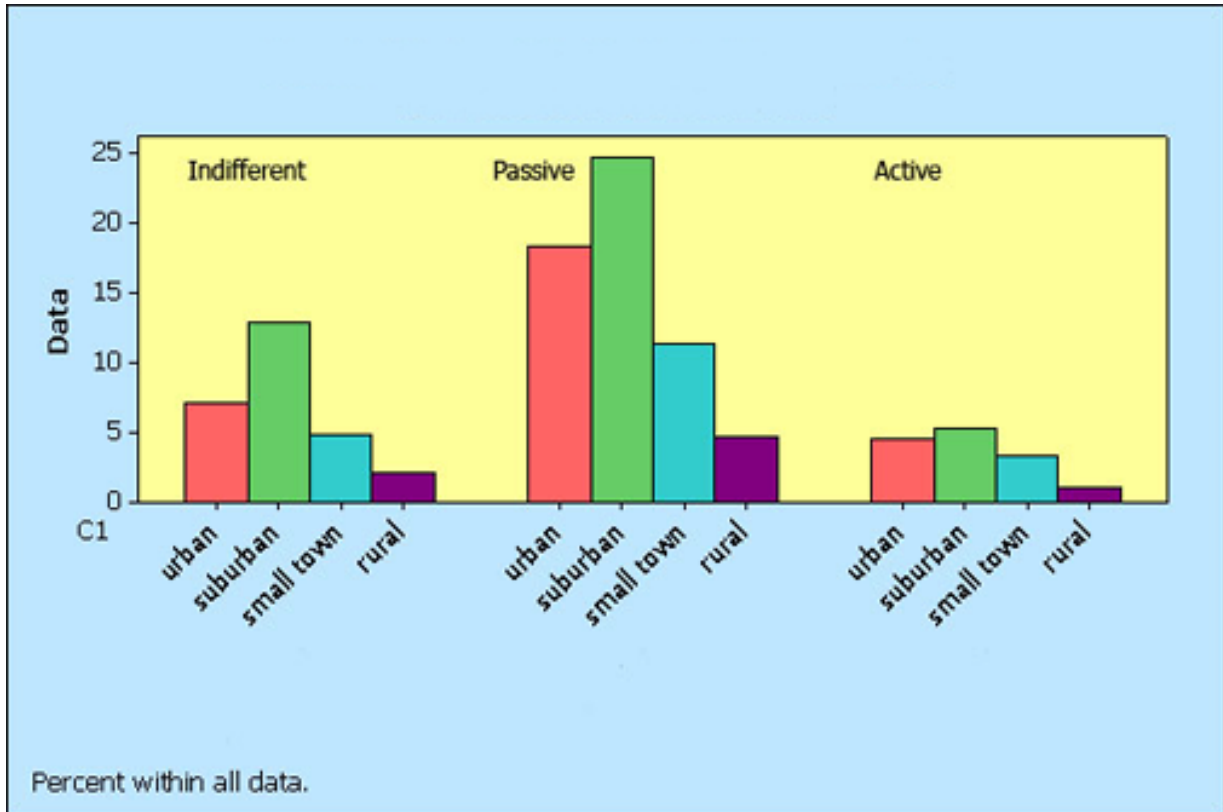


Figure 9: Level of interest in Local Food based on students' home region. (Urban, Suburban, Small Town, Rural)

This strongly positive response demonstrates that Grinnell students -- besides just the ones involved in this project! -- support the idea of incorporating more local food into the dining halls at Grinnell. Based on the response to this question, we believe that student satisfaction and enthusiasm for dining hall meals would grow if Dining Services used more well-prepared locally-sourced food. Many respondents were aware that Dining Services already serves some local food, so increasing the amount could potentially provide additional opportunities for public relations among the town of Grinnell, peer institutions, current and prospective students, and alumnae. It is our hope that Dining Services views student support and appetite for local food as an added reason to pursue the addition of more locally produced and processed food in the dining halls.

Chapter 8: Local Food in the Grinnell-Newburg Public School District

Molly Lewis
Winfield, KS

Statistics from the Local Foods Survey indicate that students at Grinnell College become increasingly conscious of local foods as they continue in their college careers suggesting an environment ripe for change. Because these data note an increased awareness of local foods as college students get older, the implication is a pervasive college atmosphere filled with an appreciation for the land and for producers who work with the land. Students begin to understand and find a genuine connection to this sense of culture and community the longer they spend in Grinnell, Iowa.

This local appreciation is cultivated in the town of Grinnell by the residents of the city, so as a class we decided to include a non-College institution in our study. In light of this decision, I have spent the semester working with the Grinnell-Newburg School District. The introduction of local foods into the district food system is crucial to the success of the Grinnell College local foods experiment. Principal Sara Hegg-Dunne of Bailey Park Elementary and I have created a pilot program to start in the fall of 2006 that features regularly scheduled local foods snacks for the kindergarten, first, and second grade students who attend this lower elementary school.

This pilot program we designed is modeled on several similar programs being implemented in school districts across the United States. In Berkley, California, at Martin Luther King, Jr. Middle School, Alice Waters initiated a “seed to table” program she calls “The Edible Schoolyard”.¹ The Edible Schoolyard program has been functioning at its current level since 2003, but the school’s garden came into existence in the summer of 1997. In 2001, the remodeling of the school commenced with the creation of a new kitchen classroom next to the school garden. The school garden produces vegetables, fruits, and grains using organic methods. The focus of this program is to teach students to understand the natural cycle of food production. The Martin Luther King, Jr. middle school students prepare the garden beds, plant the seeds, tend to the crops, harvest the produce, and prepare meals in the school’s kitchen. Students and

¹ All facts concerning The Edible Schoolyard found at <<http://www.theedibleschoolyard.org>>.

teachers eat together in the lunchroom, and cleaning up after the meal is a group responsibility. Vegetable scraps are then returned to the garden to serve as compost. Because The Edible Schoolyard is incorporated into the school's curriculum, students spend ample time in the kitchen and in the garden, and teachers adapt their classroom material and lessons to correspond with the natural functions and fluctuations of the school garden. This program approaches the utopian ideal for undertakings of this kind. By contrast, although Bailey Park Elementary School does have a school garden, the additional educational staff, vast school remodeling, and curricular and schedule reconfiguration are simply not possible for the Grinnell school district at this time.

A more realistic model for the Grinnell-Newburg school district is a pilot program in Madison, Wisconsin, now in its third year. At Lincoln, Chavez, and Shorewood Elementary schools in Madison, a program called "Wisconsin Homegrown Lunch" links "the land with the lunchroom".² This program incorporates local foods snacks, student-tested local foods menu items that are being added to the district lunch repertoire, classroom lessons based on local foods products, and visits to local farms. "Wisconsin Homegrown Lunch is a grassroots program whose goal is to enhance the Madison public schools' existing meal programs by introducing fresh, nutritious, local and sustainably grown food to children, beginning in the city's elementary schools." Wisconsin Homegrown Lunch is a joint project of the REAP (Research, Education, Action, and Policy on Food) Group and the University of Wisconsin-Madison Center for Integrated Agricultural Systems. The project is funded by a federal grant from the USDA Sustainable Agriculture Research and Education (SARE) program. Efforts of this farm-to-school project have developed the "Wisconsin Harvest Muffin," baked with local carrots and sweet potatoes, which has become a featured breakfast menu item. Additionally, a vegetable chili with local onions, peppers, and carrots is now being served as a lunch item district-wide. The Willy Street Co-op's kitchen prepares the local produce items for the pilot schools' snacks and local foods menu items. The Wisconsin Homegrown Lunch program is slowly expanding as the students, teachers, administrators, schools, and local producers become more comfortable working together

² All Wisconsin Homegrown Lunch facts found at <<http://www.reapfoodgroup.org/farmentoschool>>.

to provide fresh fruits and vegetables to students for as long as the Wisconsin growing season will allow.

Bailey Park Elementary is an ideal place to begin the process of integrating local foods into the Grinnell-Newburg school district. The school's interest in the effect of food and nutrition on education is evident, and in fact in the second week of May, 2006, the school promoted exposure to fruits, vegetables, and exercise in a project entitled "5-a-day the color way!" This week-long project was part of a national campaign to encourage exercise for elementary school students. I visited the Bailey Park on "Green Day" when the students and staff donned green attire and enjoyed snacks of celery and peanut butter in the afternoon. On "Red Day", students created red apple "ladybugs" using half an apple, peanut butter and raisins. Principal Hegg-Dunne was very proud of this program as it allowed students to taste and explore foods they might not eat regularly at home or school.

Principal Hegg-Dunne sees the promotion of local foods at Bailey Park as easily blending into existing school programs. Bailey Park teachers already incorporate experiential learning activities into their classroom routines, and often adjust lessons to visit the school's garden. "Eating is an education of the senses, and I've spent my whole career trying to open people's eyes to the beauty all around them," says restaurateur Alice Waters.³ Bailey Park Elementary, under the leadership of Principal Hegg-Dunne, understands and embraces this concept. The planned weekly or biweekly local foods snacks will be supplemented by visits to the school by local producers and field trips to local farms. Our goal is to open students' eyes to the cycle of food production and consumption. The inclusion of trips to the Grinnell Area Farmer's Market is an important component of the program as well, as students will have the opportunity to interact with a great number of local producers in one setting. The Thursday Farmer's Market in Grinnell begins at 3 p.m. and extends until 6 p.m., so effectively, the Farmer's Market excursion would need to be included in the schedule of the Davis Elementary after school program. The Davis Elementary after school program is the only remaining program in the Grinnell-Newburg school district, and all students participating in after school activities go to Davis regardless of grade level. The Bailey Park Elementary

³ Jan Newberry. "Cooking up Change," *nwa WorldTraveler* (April 2006): 43.

Parent-Teacher Organization and Grinnell's Donaldson Company, an established financial partner of the school's, will fund the local foods snack and excursion program.

Work with the Grinnell community at large is essential to the success of any Grinnell College endeavor. Thus, the local foods snack program at Bailey Park Elementary is a natural extension of the local foods movement at Grinnell College. For example, the Grinnell-Newburg school district already receives locally produced Swiss Valley dairy products, making a potential shift to these products much easier for the College as the company already delivers to Grinnell. This work with the school district will greatly benefit the local foods movement's ultimate goal of the creation of an integrated and sustainable local foods system in Grinnell. Learning to appreciate the production of food, the producers of food, and the consumption of food is necessary for a truly sustainable community-oriented living experience. "We need to breathe a whole different kind of life into learning how to eat. We need to make it irresistible and an interactive subject that will naturally bring kids [and adults] to the table."⁴

⁴ Newberry, 62.

Chapter 9: Conclusion and Recommendations

Making the transition to using more locally produced and sourced food requires a special frame of mind. This frame of mind necessitates an understanding of the multiple levels of influence in a local foods system. Cultivating a local foods system is less harmful to the environment because the food travels shorter distances. Nutritionally, locally grown food retains more essential nutrients and is picked when it is ripe, making them more flavorful. Using local foods bolsters the local economy and the livelihood of local producers. Foods grown locally are also sometimes less expensive than conventionally sourced foods. Supporting a local foods system takes a community-wide effort.

Grinnell Dining Services is moving next school year to the new Joe Rosenfield Campus Center, which creates the perfect opportunity for change. We want these changes to include the addition of local foods to the dining hall repertoire. In order for this to happen we recommend:

- Dining Services concentrates on several targeted local food items for the upcoming school year.
- An increase in menu flexibility to better include seasonal food items
- The celebration of local foods already being used and those that will be used in the future. Adding source information to the food identification cards in the dining hall will inform students of positive changes
- That in the long term, the local food discussion becomes part of a broader educational process to connect Grinnell College students and Grinnell community members to the land on which we live

This group project and the report resulting from it are part of a local foods movement. This movement extends beyond this group of students and has reached the wider Grinnell community. Through this study we have attempted to create a workable structure for responding to student interest in the subject. It takes an academic institution to analyze this sort of movement—to examine all angles of the issue—not only the economic components, but the environmental and educational aspects as well.

Currently, 5.8% of Grinnell's food budget goes towards the purchase of local foods. Our most fundamental goal is to see this number increase. During the course of the semester we were pleased to see the college moving in the direction of attaching more importance to the value of locally produced foods. Very tangibly, this was shown in Dining Services' unprecedented decision to purchase whole local chickens for the campus-wide BBQ that took place on May 18th. More significantly, it was shown in the college administration's adoption of a new "Local Food Policy Statement," which points the way for Grinnell College to assume an important role in the wider local foods movement. We conclude this report with these words of commitment to local foods as stated by the administration:

Grinnell College believes that locally grown food has many advantages. Food that is grown and processed close to where it will be consumed can be fresher, healthier and more flavorful. Purchasing locally grown items supports local businesses and farmers and reduces transportation costs, environmental impact, and the use of preservatives.

In light of these benefits of locally grown foods, Grinnell College will make reasonable efforts to identify and make purchases of affordably priced local food products that reflect the college's commitment to environmental responsibility. In seeking local food, the College will use a three-tiered definition of local, placing the highest priority on food that comes from Poweshiek County and the surrounding counties, followed by prioritizing food from the state of Iowa, and then food from the Upper Midwest region.

Appendix A: Local Food and Farm-to-College Resources on the Internet

Community Food Security Coalition, Farm-to-College Resource:

<http://www.farmtocollege.org/resources.htm>

Farm to School: Publications and Case Studies

<http://www.farmtoschool.org/pubs.htm>

Sustainable Table: Sustainable Food in Schools – Cafeterias and Dining Halls

<http://www.sustainabletable.org/schools/dining/>

W.K. Kellogg Foundation, Food and Society Program

<http://www.foodandsociety.org>

ATTRA - National Sustainable Agriculture Information Service

Bringing Local Food to Local Institutions: A Resource Guide for Farm-to-School and Farm-to-Institution Programs

<http://attra.ncat.org/attra-pub/farmtoschool.html>

Leopold Center for Sustainable Agriculture, Iowa State University – Marketing and Food Systems Initiative

<http://www.leopold.iastate.edu/research/marketing.htm>

University of Iowa Local Food Project

<http://www.uni.edu/ceee/foodproject/>

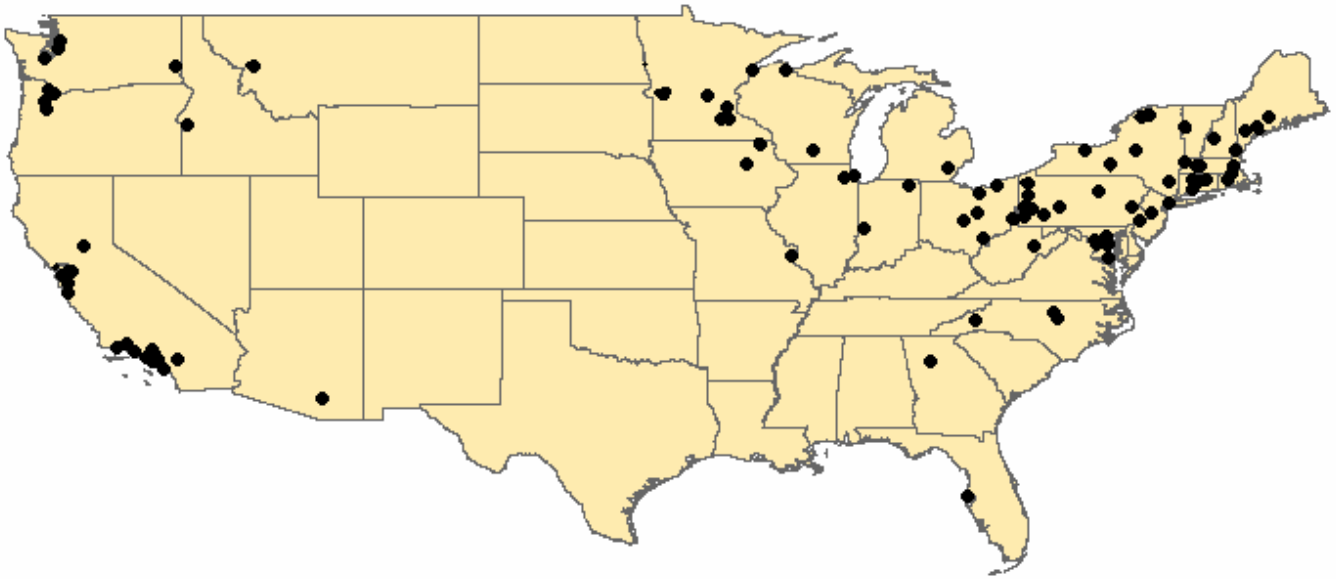
Value Chain Partnerships for a Sustainable Agriculture: Regional Food Systems Working Group

<http://www.valuechains.org/rfswg.html>

For a list of colleges and universities with local food initiatives see:

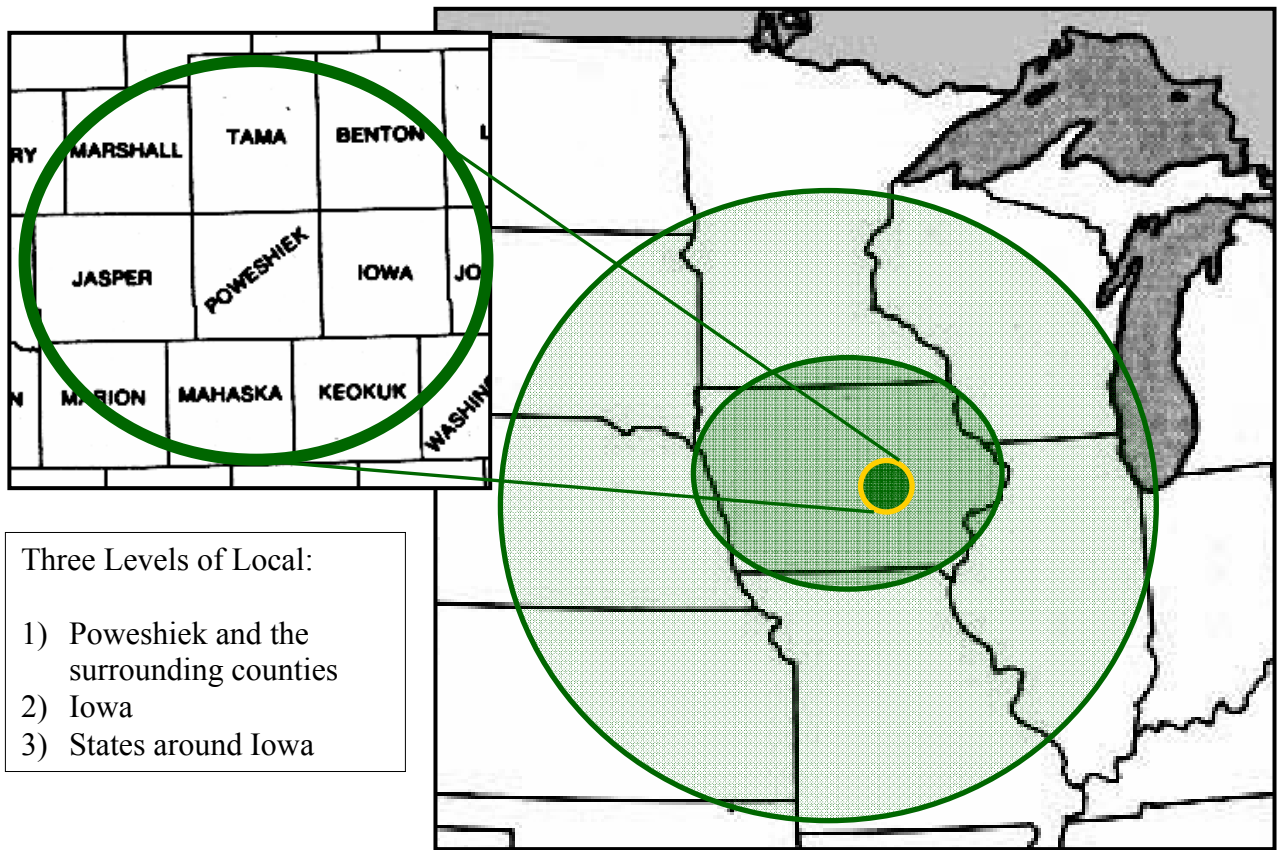
<http://www.farmtocollege.org/list.php>

Appendix B: Farm-to-College Programs



Farm-To-College programs nationwide (courtesy of the Community Food Security Coalition, www.farmtocollege.org)

Appendix C: Concentric Ring Model and Three-tiered Definition of Local



Appendix D: Priority Food List for Local Food Course

March 12, 2006

The following list was created by the Local Food Course after looking through a list of products bought by Grinnell College Dining Services in Feb. 2006 as well as based on information the students had collected up to this point. Priority was given to certain food items based on (in no specific order):

- Current Local Availability
- Potential Local Availability
- Volume used by Dining Services
- Seasonality
- How well these items could be stored

Priority Foods for Further Research

Meat:

Beef
Pork

Produce with Short Shelf-Life:

Apples
Pears
Bell peppers
Greens: Lettuces – Spinach – Kale
Tomatoes
Sweet corn
Summer Squash (zucchini)

Produce with Long Shelf-Life

Potatoes
Yams
Onions
Carrots
Beets
Winter Squash
Applesauce/Apple butter

Eggs

Dairy:

Milk
Cheese
Butter
Yogurt

Tofu

Grains:

Flour(s)
Cornmeal
Oats

Herbs:

Basil, cilantro, chives, garlic, parsley, etc.

Honey

Appendix E: Interview Form used when contacting Distributors

Questions for Distributors

Where is the food we receive at Grinnell distributed from?

How variable is this for different food product categories?

Where are the producers located?

How variable is this for different food product categories?

Where are the food processors (any and all intermediate steps between production and distribution)?

What is the mode of transportation for the products between each of these locations?

Do the producers you buy from change with the seasons?

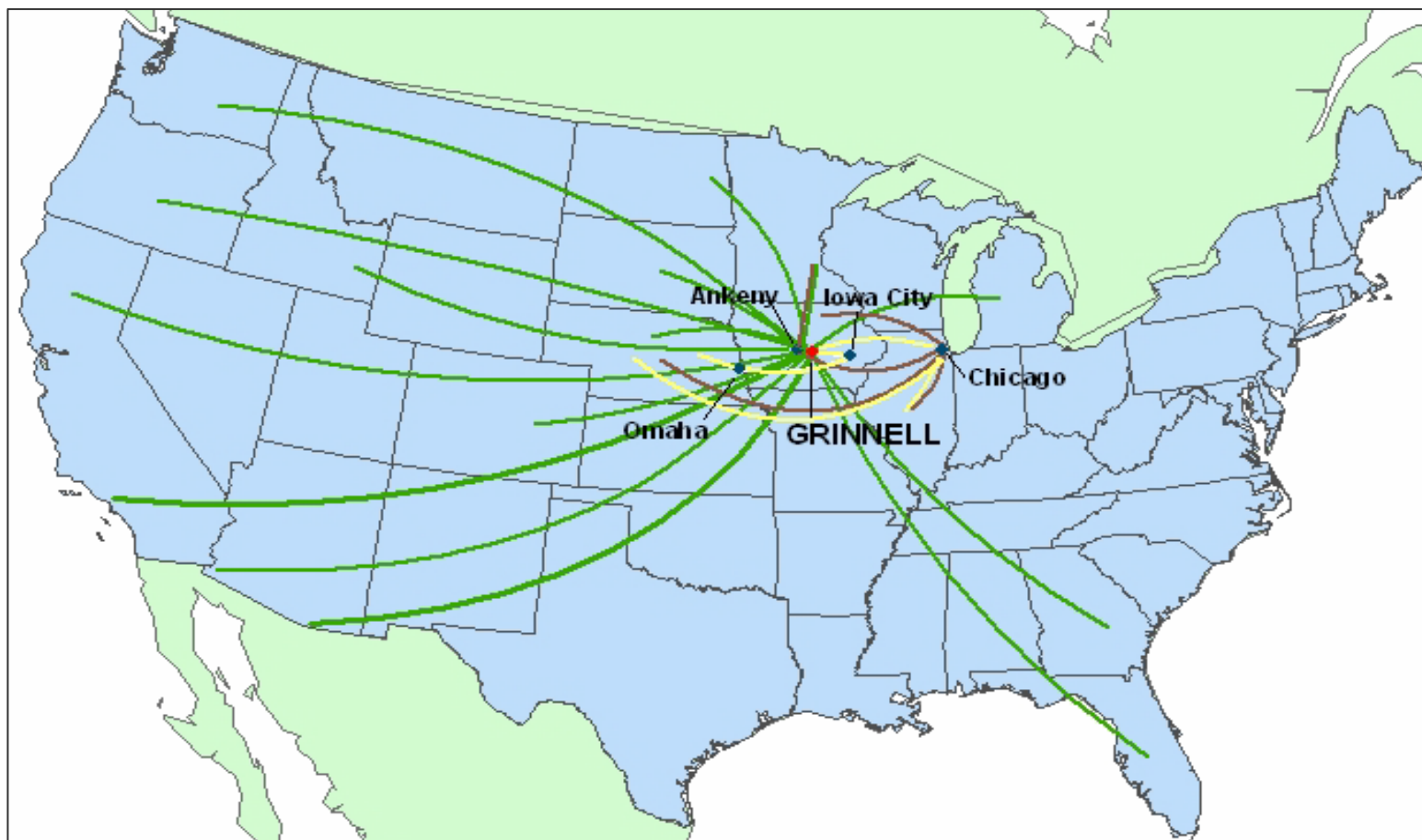
What is the extent of this change over the course of the year? Can you estimate a percentage change?

How carefully are you required by law to track batches? Does this vary by type of product? (For instance, apples usually carry a tag indicating their origin, but broccoli doesn't.)

How might an increase in fuel prices (say, by 5%, 10%, or 20%) impact your business?

Appendix F: List of priority food items, the current distributors for those items and their approximate production location.

<u>Food Item</u>	<u>Distributor</u>	<u>Production Location</u>
Ground Beef	SYSCO	NE, MN
Pork Chops	SYSCO	IL, IA, NE
Anjou Pears	SYSCO	WA
Apples	SYSCO	WA
Apple Sauce	SYSCO	WA
Green Peppers	SYSCO	MN, CA
Red Peppers	SYSCO	MN, CA
Tomatoes	SYSCO	MN, Nogales, CA
Cherry Tomatoes	SYSCO	Nogales, CA, FL
Potatoes	SYSCO	ID, WA, CO
Red Potatoes	SYSCO	MN, CA, ND, SD, FL
Green Onions	SYSCO	Nogales, CA
Onions	SYSCO	ID, WA, CO
Spinach	SYSCO	AZ, CA
Zucchini	SYSCO	Nogales, CA, AZ, MI, IA
Beets	SYSCO	MI, CA, GA
Whole Kernel Corn	SYSCO	MN, CA, GA, MI
Herbs	SYSCO	CA
Milk	Robert's Dairy	NE
Yogurt	Robert's Dairy	IL, NE, IA

Appendix G: Map of Grinnell College's current conventionally-sourced food system for the priority food items.

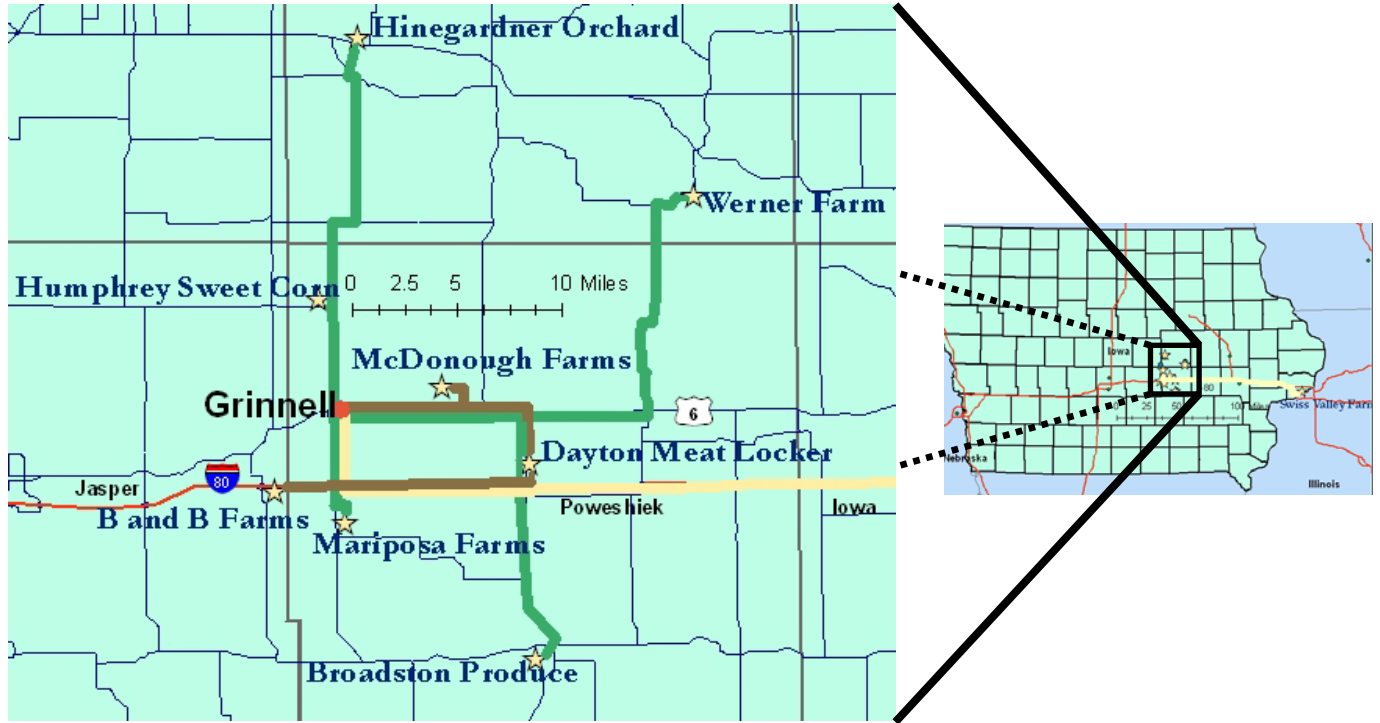
The lines connect the production location to the Grinnell and reflect the food pathway for the food items.

Green lines indicate the food pathway for produce items.

Brown lines represent the food pathway for meat items.

Yellow lines illustrate the food pathway for milk produce.

Appendix H: Map of the potential locally-sourced food system for the priority food items.



Appendix I: Local Food System Food Miles and WASD Values

Item	Quantity	Unt.	wks/yr ⁶²	Producer	FM ⁶³	MT ⁶⁴	Producer	%	FM	MT	WASD	#wks Conventional ⁶⁵	Conventional WASD _{optimistic} ⁶⁶	Conventional WASD _{pessimistic} ⁶⁷
Ground Beef	1460	lbs	52	Barney's	21.02	ST	McDonough	0.5	20.51	ST	20.8	0	0.0	0.0
Pork Chops	110	lbs	52	Barney's	21.02	ST					21.0	0	0.0	0.0
Anjou Pears	5880	ct	9	Hinegardner	21.07	ST					21.1	43	1478.5	1629.9
Apples														
Granny Smith	3955	ct	9	Hinegardner	21.07	ST					21.1	43	1462.8	1462.8
Golden Delicious	4900	ct	9	Hinegardner	21.07	ST					21.1	43	1462.8	1462.8
Red Delicious	4181	ct	9	Hinegardner	21.07	ST					21.1	43	1462.8	1462.8
Apple Sauce	2719.8	lbs	9	Hinegardner	21.07	ST					21.1	43	1462.8	1629.9
Green Peppers	52	bshl	5	Werner	27.09	ST	Broadston	0.05	24.08	ST	25.6	47	261.2	1654.0
Red Peppers	385	lbs	5	Werner	27.09	ST	Broadston	0.05	24.08	ST	25.6	47	261.2	1654.0
Tomatoes	2820	lbs	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	239.0	1443.0
Cherry Tomatoes	147.96	pt	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	1443.0	1554.6
Potatoes	1650	ct	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	1184.3	1429.8
Red Potatoes	2300	lbs	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	239.0	1579.4
Green Onions	355	lbs	4	Werner	27.09	ST	Broadston	0.04	24.08	ST	25.6	48	1610.8	1813.8
Onions	865	lbs	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	1212.3	1476.1
Spinach	544	lbs	4	Werner	27.09	ST	Broadston	0.04	24.08	ST	25.6	48	1684.6	1813.8
Zucchini	380	lbs	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	1443.0	1624.9
Beets	180	lbs	9	Werner	27.09	ST	Broadston	0.09	24.08	ST	25.6	43	567.3	1579.4
Whole Kernel Corn	420	lbs	3	Humphrey	12.6	ST					12.6	49	272.3	1799.8
Herbs	197	lbs	52	Mariposa	6.13	ST					6.1	0	0.0	0.0
Milk	2395	gal	52	Swiss Valley	262						262.0	0	0.0	0.0
Yogurt	1840	lbs	52	Swiss Valley	219						219.0	0	0.0	0.0
Local WASD											928.3	Conv WASD	17747.76154	27070.94231

Total Local WASD_{best} = Local WASD + Conventional WASD_{best} = 18676.1

Total Local WASD_{worst} = Local WASD + Conventional WASD_{worst} = 27999.242

⁶² Wks/yr = The number of weeks per year (out of 52) that the priority food item could be locally sourced

⁶³ FM = Food Miles

⁶⁴ MT = Mode of Transportation

⁶⁵ # wks Conventional = The number of weeks that the conventionally sourced food system would need to supplement the locally sourced food

⁶⁶ Conventional WASD_{optimistic} = The WASD value for the optimistic model for the conventionally sourced food for the given number of weeks

⁶⁷ Conventional WASD_{pessimistic} = The WASD value for the pessimistic model for the conventionally sourced food for the given number of weeks

Appendix J: Current Food System Food Miles and WASD values

Item	Quantity	Units	PL ⁶⁸	% ⁶⁹	FM ⁷⁰	MT ⁷¹	PL	%	FM	MT	WASDopt ⁷²	WASDpess ⁷³
Ground Beef	1460	lbs	NE	0.8	236	TT	MN	0.2	289	TT	246.6	246.6
Pork Chops	1760	oz	IL	Opt.	387	TT	IL (NE)	Pess.	1087	TT	387	1087
Anjou Pears	5880	ct	WA	Opt.	1788	TT	CA	Pess.	1971	TT	1788	1971
Apples												
Granny Smith	3955	ct	WA	Opt.	1769	TT					1769	1769
Golden Delicious	4900	ct	WA	Opt.	1769	TT					1769	1769
Red Delicious	4181	ct	WA	Opt.	1769	TT					1769	1769
Apple Sauce	2719.8	lbs	WA	Opt.	1769	TT	CA	Pess.	1971	TT	1769	1971
Green Peppers	52	bshl	MN	Opt.	289	TT	CA	Pess.	1830	TT	289	1830
Red Peppers	385	lbs	MN	Opt.	289	TT	CA	Pess.	1830	TT	289	1830
Tomatoes	2820	lbs	MN	Opt.	289	TT	Nogales		1745	TT	289	1745
Cherry Tomatos	147.96	pt	Nogales	Opt.	1745	TT	CA		1880	TT	1745	1880
Potatoes	1650	ct	ID	0.7	1305	TT	WA	0.3	1729	TT	1432.2	1729
Red Potatoes	2300	lbs	MN	Opt.	289	TT	CA		1910	TT	289	1910
Green Onions	355	lbs	Nogales	Opt.	1745	TT	CA	Pess.	1965	TT	1745	1965
Onions	865	lbs	ID	Opt.	1466	TT	WA		1785	TT	1466	1785
Spinach	544	lbs	AZ	Opt.	1825	TT	CA	Pess.	1965	TT	1825	1965
Zucchini	380	lbs	Nogales	Opt.	686	TT	CA		1965	TT	686	1965
Beets	180	lbs	MI	Opt.	686	TT	CA		1910	TT	686	1910
Whole Kernel Corn	420	lbs	MN	Opt.	289	TT	CA		1910	TT	289	1910
Herbs	197	lbs	CA	Opt.	1910	TT					1910	1910
Milk	2395	gal	NE	Opt.	442.1	RT					442.1	442.1
Yogurt	1840	lbs	IL	Opt.	387	RT	IL		1087	RT	387	1087
TOTAL Food Miles											23266.9	36445.7

⁶⁸ PL = Production Location

⁶⁹ % = Percentage of food obtained from this production location

⁷⁰ FM = Food Miles

⁷¹ MT = Mode of Transportation; TT = Tractor Trailer and RT = Refrigerated Truck

⁷² WASD_{opt} = The WASD value for the optimistic model

⁷³ WASD_{pess} = The WASD value for the pessimistic model

**Appendix K: Email contact with Patrick O'Connor from SYSCO of Iowa.
Responses are indicated by bold face type.**

Dear Mr. O'Connor,

First of all, I wanted to thank you for being so willing to answer my questions and provide me with the information that you have that is relevant to my research.

Based on the purchasing list provided to me by Dick Williams, the products that I am interested in are as follows (I have tried to be as specific as possible and any lingo I have used reflects what I have found on the purchasing list):

Here are the items that we are currently purchasing from Sysco and other locations as seasons change. The biggest issue is the liability that growers have to carry to supply Sysco with any food item.

-Bulk Ground Beef	Nebraska and Minnesota
-Pork Chops	Iowa and South Dakota
-Anjou Pears	Washington/California
-Fuji Apples	Washington
-Granny Smith Apples	Washington
-Golden Delicious Apples	Washington
-Red Delicious Apples	Washington
-Apple Sauce	Washington/California
-Green Peppers (diced, ring, strip, chunk)	Minnesota
-Red Peppers (diced, ring, strip, chunk)	Minnesota
-Tomatoes (Bulk, diced, sliced)	Minnesota
-Cherry Fresh Tomato	Nogales/California/Florida
-Roma tomatoes	Nogales/California/Florida
-Potatoes (peeled, quartered, whole)	Idaho/Washington/Colorado
-Fresh red potatoes	Minnesota/Dakota's/Florida/California
-Green Onions (diced, sliced)	California/Nogales
-Onions (quartered, fresh, cut)	Idaho/Washington/Colorado
-Spinach (baby, chopped, clipped)	California/Arizona
-Yellow Squash	California/Arizona/Michigan/Iowa/Nogales
-Butternut Squash	California/Arizona/Michigan/Iowa/Nogales
-Zucchini	California/Arizona/Michigan/Iowa/Nogales
-Sliced Beets	California/Michigan/Georgia
-Whole Kernel Corn	California/Michigan/Georgia/Minnesota
-herbs (basil, cilantro, chives, garlic)	California

I think that the following questions would help me to develop a better understanding of the scope of Sysco food distribution in relation to Grinnell:

1. Where is the distribution point before the food arrives at Grinnell?
Does this vary for different categories of products?

Every thing comes from the Sysco warehouse in Ankeny Iowa. We check in every pallet for correct price, temperature and meets HSAP government rules for resale. All produce is check on every pallet for freshness and safty.

2. Where are the producers for the above mentioned food items? How much does this vary seasonally?
3. For each item, what are the intermediate steps between production and distribution? Where does this take place?

90% of the QA'a takes place at the processor facilities that have Sysco inspector on sight in unsure quality and safe handling. Sysco employees more inspector that all other distributors put together. The other 10% is done in Ankeny at the time of delivery.

Examples of what I am trying to get at are: the plants where bananas are treated in order to ripen them and prepare them for sale (this clearly does not apply to my list) or the location where green peppers are diced so that they are ready to be used in the kitchen.

4. What is the mode of transportation for the food items between each of these locations? Tractor trailer is 90%

Most is tractor trailer or little rail.

5. (And finally...) How might an increase in fuel prices (say by 5%, 10%, or 20% impact your distribution of food?

Fuel increases have been a big part of over all food increase for 2005 and 2006. We use our Sysco fleet to back haul items that are local after deliveries such as fresh eggs from the Belmont and Hampton facilities. We purchase larger amounts with companies that can supply us with a variety of items such as Sysco pasta from South Dakota comes from one plant. Product from east and west coast has just increase with fuel as well as events like hurricanes in the south can increase goods more than fuel.

**Hope this helps have a great finish to the end of the school year.
Patrick O'Connor District Sales Manager Sysco Iowa**

Appendix L: Producer Questionnaire

Current Operation Questions

1. What does your farm produce?
2. How long have you produced this crop?
3. Have you raised other products in the past?
4. Where and how do you market your products?
5. Do you have a source of income other than your farm?
6. Do you collaborate with any other local producers?
7. Do you work with a locker/processor/distributor?
8. Do you process your products in anyway before selling them?
9. Do you have a cooler or storage facility for you products?
10. Do you raise GMO products?
11. Do you use organic methods?
12. Have you sought organic certification?

Future Interest Questions

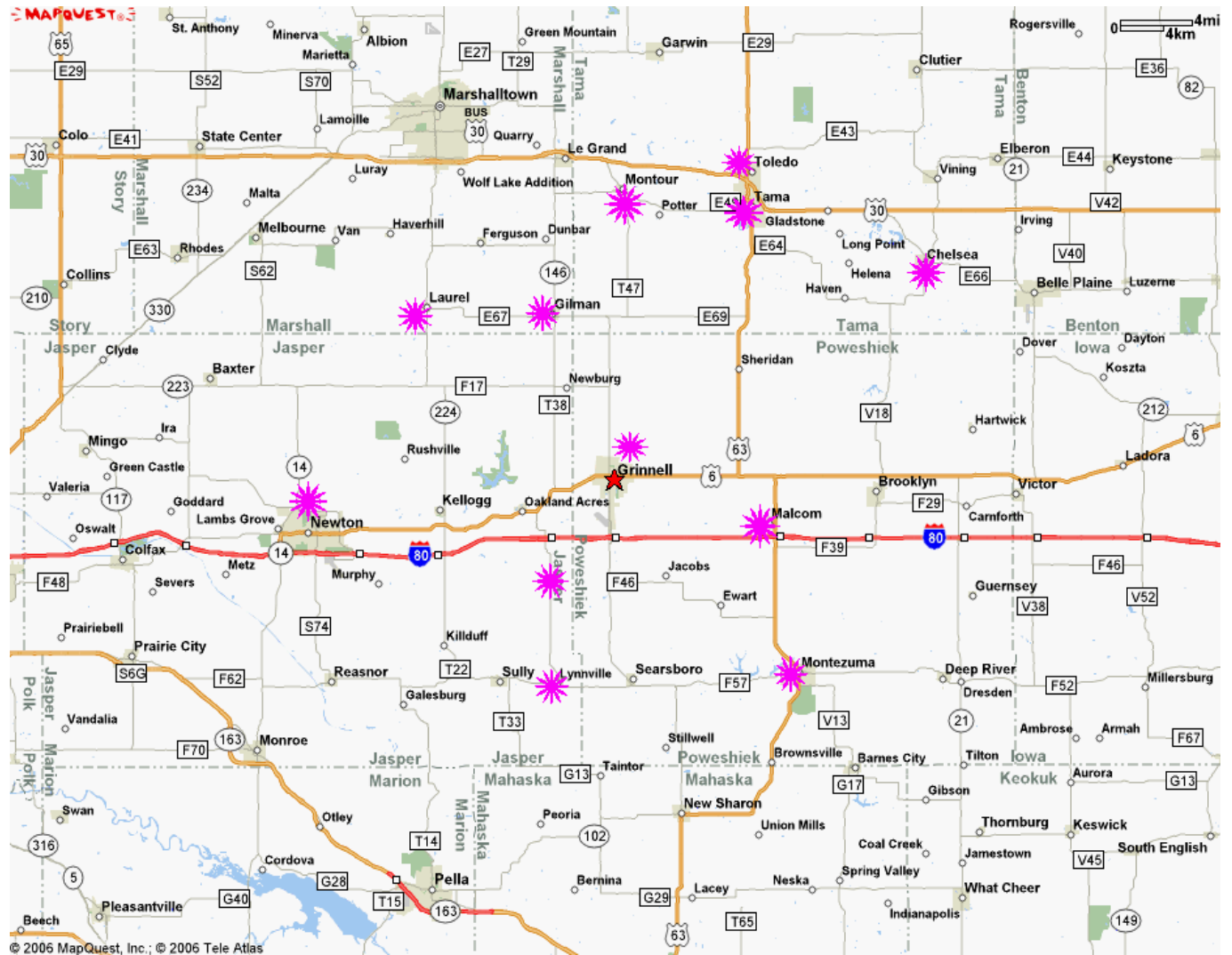
1. Are you satisfied with the current marketing system for your products?
2. What would you like to change about it?
3. Would you be willing/able to sell your products to a local institution like Grinnell College?
4. What do you see as the possible challenges/limitations you would face by marketing to the college?
5. Would you be willing to work closely with other farmers in terms of planting, breeding, harvesting and sorting of your products?
6. Would you be willing to be a part of a cooperative of farmers that all market their products to the college?
7. What are your concerns about being a part of such a cooperative?
8. Would you be willing to organize/lead such a cooperative?
9. Are you able to/have the desire to use your farm as an organizational center for the cooperative?
10. Would you be willing to help sort, clean or process your products?
11. Would you like to grow the same crops you do now or change somehow?
12. Would you be willing/able to grow a greater quantity of your products?
13. Would you be willing to grow other crops for the college?
14. Would you be willing to help deliver products to the college?
15. What are your thoughts about marketing agreements/contracts with the college?

Appendix M: Directory of Producers from Poweshiek and Surrounding Counties

	Producer	Farm name	Location	Products	Venues
1.	Barney Bahrenfuse	B and B Farm	Grinnell, IA	Beef, pork, lamb, poultry	direct marketing
2.	Ann Brau		Malcom, IA	Assorted vegetables	CSA, Grinnell farmer's market
3.	Dennis and Pamela Broadston	Broadston Produce	Montezuma, IA	Assorted vegetables	Farmer's markets
4.	Tom and Connie Dreesman	Dreesman Buffalo Ranch	Tama, IA	Buffalo meat	Farmer's markets, direct marketing
5.	Lisle and Brenda Dunham	Dunham Farm	Grinnell, IA	Assorted vegetables, beef	CSA, Farmer's markets
6.	Phil Ebert	Ebert Honey	Lynnville, IA	Honey	Direct marketing, farmer's markets
7.	Cliff Foster		Chelsea, IA	Assorted vegetables	Farmer's markets
8.	David Hinegardner	Hinegardner Orchard	Montour, IA	Apples, pears, squash, pumpkins, melons, berries, beef	Wholesale to grocery stores, direct marketing/ "pick your own," Grinnell farmer's market
9.	Joel Herr	Interstate Produce	Newton, IA	Assorted vegetables,	Wholesale to grocery stores, direct marketing
10.	Beth Hotger		Newton, IA	Assorted vegetables,	Wholesale to grocery stores, farmer's markets
11.	Brad Humphrey	Humphrey Sweet Corn	Gilman, IA	Sweet corn, tomatoes	Farmer's markets, direct marketing
12.	Howard McDonough		Grinnell, IA	Beef (Texas Longhorn)	Wholesale
13.	Steven and Wayne Paul	Paul's Grains	Laurel, IA	Corn, spelt, rye, wheat, beef, lamb	Direct marketing, farmer's markets
14.	Jack Suiter	Heartland Farms	Newton, IA	Cucumber, squash, tomatoes	Wholesale to Hyvee, direct marketing, farmer's markets
15.	Chuck & Ginger Werner		Chelsea, IA	Assorted vegetables, apples, melon, berries	Wholesale, direct marketing, farmer's markets

Appendix N: Map of Producers from Poweshiek and Surrounding Counties*

Producers are indicated with pink flowers. Not all producers are represented here, and pink flowers can represent from one to three producers.



*Map provided by Mapquest.com

Appendix O: Product List of Selected Items from Poweshiek and Surrounding Counties

<u>Produce</u>	<u>Meats</u>	<u>Grains</u>	<u>Dairy</u>	<u>Other</u>
Apples	Beef	Corn	Blue Cheese*	Eggs
Asparagus	Bison	Spelt		Herbs
Beets	Chicken	Rye		Honey
Berries	Elk	Wheat		Nuts
Broccoli	Lamb			
Carrots	Pork			
Cauliflower				
Cucumbers				
Eggplant				
Green beans				
Leeks				
Lettuce				
Melons				
Onions				
Peas				
Peppers				
Pears				
Potatoes				
Rhubarb				
Radishes				
Spinach				
Squash				
Sweet corn				
Tomatoes				

* Blue cheese is from the Maytag Dairy, which we did not contact directly, but discovered through the GALFA Directory

Appendix P: Cost Comparison of Fourteen Food Items

Food Item	Current Supplier/ Producer	Current Supplier/Producer Geographic Location	Local Supplier/ Producer	Local Supplier Location	% Change (Increase if purchased locally)	Nominal Price Difference (Local Total - Current Total) Jan – Mar '06 ⁷⁴
Ground Beef	SYSCO	Nebraska and Minnesota	Dayton's Meat Locker	Malcolm, IA	70.93%	1,690.32
Apples - Granny Smith	SYSCO	WA	Hinegardner	Montour, IA	4.85%	38.85
Apples- Golden Delicious	SYSCO	WA	Hinegardner	Montour, IA	-10.95%	(144.55)
Apples - Red Delicious	SYSCO	WA	Hinegardner	Montour, IA	-3.96%	(36.63)
Potatoes - Fresh Red	SYSCO	MN, SD, ND, FL, CA	Werner	Chelsea, IA	13.38%	135.70
Carrots	SYSCO	CA	Hotger	Newton, IA	31.58%	366.00
Onions - Yellow/White (quartered, fresh wdg 8 cut, fresh Juln 3/8")	SYSCO	ID, WA, CO	Werner	Chelsea, IA	-47.37%	(389.25)
Onions - Green (Diced/sliced)	SYSCO	CA, Nogales (Mexico)	Broadston	Montezuma, IA	-82.86%	(1,029.50) ⁷⁵
Winter Squash - Early Season	SYSCO	CA, AZ, MI, IA, Nogales (Mexico)	Hinegardner	Mountour, IA	-60.23%	(61.67)
Winter Squash - Late Season	SYSCO	CA, AZ, MI, IA, Nogales (Mexico)	Hinegardner	Montour, IA	-65.91%	(67.49)
Spinach (Baby, Chopped, Clipped)	SYSCO	CA, AZ	Broadston	Montezuma, IA	-14.29%	(136.00)
Tomatoes (Bulk, diced, sliced)	SYSCO	MN, Mexico	Werner	Chelsea, IA	-62.25%	(2,325.09)
Eggs - Shell	SYSCO	Belmond, IA	Farmer's Hen House	Kalona, IA	51.98%	302.67
Eggs - Liquid	SYSCO	MN	Farmer's Hen House	Kalona, IA	0.37%	11.22

⁷⁴ Numbers in parentheses represent the savings from purchasing locally. Numbers without parentheses represent added expense of purchasing locally.

⁷⁵ For green onions: The difference between SYSCO's price and the local producer's price seems questionably large, though it may be accurate. Because this data may be incorrect, I have chosen not to use it in my examples.

Appendix Q: Local Foods Survey

Introduction: As part of an independent study project on local food in Grinnell, this survey will help to evaluate current student interest and opinion about local food on the Grinnell College campus. The class plans to use the results of the survey to continue dialogue with Dining Services about local food on campus. The survey should take approximately five minutes. Upon filling out the survey, you will be entered into a drawing; we will award two twenty-five dollar gift certificates to the bookstore. Thank you for your time.

Consent: By submitting the survey you are acknowledging consent for the anonymous use of the results. Please direct any technical questions to Fred Hagemeyer [hagemeis@grinnell.edu or x3031].

1. What is your class year?

- '06
- '07
- '08
- '09

2. How many meals a week do you eat at the dining hall?

3. Do you live in the dorms on campus?

- Yes
- No

4. How would you best describe the area where you grew up?

- Urban
- Suburban
- Small town
- Rural

5. Which region of the country are you from?

- Northeast
- East
- South
- Midwest
- Southwest
- West
- Northwest
- International

6. Evaluate the following on a scale 1-5 or no answer: (1 = minimally & 5 = a great deal)

	1= Minimally	2	3	4	5= a Great deal	No Answer
How much do you think about <i>where</i> the food in dining halls is produced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How much do you think about <i>how</i> the food in the dining halls is produced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How important is freshness (i.e., how quickly your food travels from farm to table)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How fresh do you believe the produce and dairy products are at Grinnell?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How much do you think about the nutritional value of your food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How much do you think freshness affects nutritional value?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Have you heard the phrase 'local food?'

- Yes
 No

8. If so, what does the phrase 'local food' mean to you?

9. If given the opportunity, do you purchase local food?

- Yes
 No
 Sometimes

10. In what way does buying locally produced / raised food affect the environment?

11. In what way does buying locally produced / raised food impact the local economy?

12. Does the dining hall serve local food?

- Yes
- No
- Do not know

13. What foods served in the dining halls do you believe are or might be locally produced?

14. How does the food here differ from the food you eat at home in terms of freshness, nutrition and distance traveled?

15. Eating locally implies eating seasonally. Would you be willing to restructure the menu in order to use more seasonal products, perhaps increasing menu flexibility?

- Yes
- No

16. Sometimes local food costs more. Would you be willing to pay more for the dining plan to include more local food, and if so, how much more?

- I would not be willing to pay more.
- 1-5%
- 5-10%
- 10-15%
- more than 15%

17. Would you like to see an increased effort to incorporate more local food at Grinnell?

- Yes
- No

18. How invested are you in terms of making local foods a priority at Grinnell?

- Not at all
- Indifferent
- Passively invested
- Actively invested

Appendix R: Proposal for Bailey Park Elementary Local Foods Pilot Program

The *Local Foods Snack Pilot Program* as initiated by Grinnell College student, Molly Lewis will begin at Bailey Park Elementary in the fall of 2006 because of Principal Sara Hegg-Dunne's interest in food issues as related to students' educational experiences. In the long term this program for local foods snacks will grow and extend to each of the five schools in the Grinnell-Newburg School District. The snacks and supplemental excursions will be intricately tied to the curriculum of each of the participating schools.

The current proposed program will include:

- Weekly or biweekly snacks of local foods purchased from local producers at reasonable prices
- Trips to Grinnell-area farms
- Visits to the school by local producers
- After school excursions to the Grinnell Farmers' Market
- Students and teachers will plan for the snacks and incorporate food into teaching for the day if possible.

The program will be funded by the Bailey Park Elementary Parent-Teacher Organization and Grinnell's Donaldson's Company which is an established financial partner of the school's.

Some sample prices for potential snack items are as follows:

- Apples at \$24.00/bushel which is approximately 100 apples or 42 lbs. (Hinegardner)
- Carrots at \$0.50/lb. (Hotger)
- Green beans at \$24.00/bushel (Hotger)
- Tomatoes—regular at \$0.50/lb and cherry at \$1.00/pint (Werner)
- Cucumbers—3 large for \$1.00
- Honey at \$1.30/lb in 5 gallon buckets (Ebert)

These prices are primarily based on buying items in bulk, though produce can also be purchased at local grocery stores and the Farmers' Market in smaller amounts.

Producers and suppliers to contact for local foods and farm visits:

Hinegardner Orchard (David and Julie Hinegardner, 641 492-6353): apples, berries, melons, pears, squash, and pumpkin

Beth Hotger (515 202-4455): assortment of vegetables

Chuck and Ginger Werner (641 489-2046): apples, berries, melons, pears, assortment of vegetables, eggs

Ebert Honey Co. (Phil Ebert, 641 527-2639): honey, liquid and comb

Ann Brau (641 528-5800 or 641 990-6832): eggs, herbs, assortment of vegetables

Dayton Meat Locker (Mark Lang, 641 528-3420): fresh and processed local meat products; barbequed beef and pork, flavored beef sticks

The Bakehouse (Dave and Dori Harvey, 641 522-9570): grains and granolas

Sojourn Farm (David and Margery De Vilder, 641 522-9605): apples, berries, cherries, grapes, melons, pears, assortment of vegetables

Mariposa Farms (Dave Conklin, 236-5740): wide assortment of herbs

Utility Shop (Whitney Worley, 236-5276): breads