

“We can only be ethical to something
we can see, feel, understand, love or otherwise have faith in.”

- Aldo Leopold

Local agricultural provides the Rhode Island community with a number of goods, fresh food being but one. Access to farms offers non-agrarian citizens a place to connect with their immediate environment. Whether stopping at a roadside stand or buying a locally grown tomato at a Providence supermarket, locally grown foods increase our awareness of the ecological community in which we live. Regional farms, by providing open space, are an irreplaceable asset to the quality of life of Rhode Islanders. The *Farm, Forest and Open Space Act* from the Rhode Island General Assembly acknowledges these benefits, mentioning the effect local food sources have on the welfare and happiness of State residents.

Through direct purchasing relationships such as farmer’s markets and CSA’s¹, producers and consumers meet face to face. Stronger community bonds result, facilitating the growth of social capital (Thorpe, 2004; Barrington, 2003). The sale of locally grown food keeps dollars in the local economy (Herrera, 2003). By keeping local agriculture viable, the ability of the community in being able to provide for the basic needs of its members increases.

Local food is a unique medium for addressing interrelated issues of environmental degradation, community health and community food security. Food, by its inherent nature, brings people together. Whether at the dinner table, the grocery store or the farm stand, food links members of a community. The sensory experience of eating fresh, tangy tomatoes involves the eater. This eater will more likely internalize agricultural issues if s/he has personally connected with the subject: if s/he has tasted it, seen it or simply driven past it.

¹ Community Supported Agriculture refers a system wherein a CSA member pays a lump sum to the farmer in early spring. Each week throughout the growing season all shareholders receives a basket of assorted produce. CSA’s often have other educational and mandatory work components.

How does localizing the area from which nutrients are gathered, also known as the *foodshed*, reduce the ecological impact of agriculture? The distance food travels between point of production and point of consumption has been increasing. Today in the United States food travels an estimated 25% farther than it did in 1980 (Pirog, 2002). More, the value of international trade in food has tripled and the tonnage of food shipped between nations has grown fourfold in the same period of time (Halweil, 2002). Considering the amount of fossil fuel used in transportation, food is becoming more energetically expensive (Manning, 2004). Purchasing locally grown foods reduces fuel use and food miles². Localized distribution leads to reduced packaging and reduced food waste from shrinkage³ (Cirulli, 2004). In terms of biodiversity, a farmer's crop variety increases when production is geared toward the market diversity of a local community (Jackson, 2002).

Considering population size and land area, Rhode Island cannot be food self-sufficient. It can, however, reassert a presence of locally grown foods into more resident's diets, thereby making the State more food secure. "Foreign" foods, or foods produced outside the New England region, crowd the shelves of local supermarkets, demonstrating our dependency on long and complex marketing chains (Woodruff, 1980). As Vandana Shiva mentions in her book *Stolen Harvest*: "We have little influence over decisions made 2,000 miles away by people we do not know". This dependency is detrimental to the food autonomy of our community, not to mention the wellbeing of the global environment (Beeman, et.al., 2001).

Why should we want to increase the production of locally grown foods? The appeal of local foods extends to a wide range of community members, benefiting each of us in a multitude of ways. A localized foodshed means reduced food miles, reduced food waste, reduced

² Food miles are the distance food travels from where it is grown to where it is ultimately purchased or consumed by the end user (Pirog, 2003)

³ Reduction in product caused by spoilage during transportation. "50% of the entire lettuce crop is lost to shrinkage" (Cirulli, 2003)

packaging and an increased the connection between consumers and the ecological processes which support life on the planet. Locally grown foods appear safer to consumers because, as one produce wholesaler said: “they live here and they can see what’s happening” (Roche, 2003). Given the many arguments in favor of locally grown foods, my thesis question is: *What are barriers to the production and distribution of locally grown foods in the Rhode Island region?*

I am interested in understanding why Eastside Marketplace sells potatoes shipped from Wisconsin for the same price as potatoes grown in South County, R.I. (date of observation: September 16th, 2003). Related to this, I am interested in knowing why only 10% of what New Englanders eat is grown in New England (Farms to Food, 2002). Why has crop production in R.I. shifted from edible crops such as dairy and potatoes to non-edibles such as turf and horticulture over the past 50 years? What roles do distribution outlets—grocery stores, supermarkets, produce wholesalers, farmer’s markets—play in determining the scale of the foodshed? What is our regional potential for increasing food self-sufficiency?

Agriculture in the United States and Rhode Island, 1950 to present

While a shift from small-scale farming for local markets to large-scale industrial farming for global markets has been occurring for centuries, the process has accelerated dramatically in the last fifty years (Norberg-Hodge, 2002). In general, as the number of farms and farmers has decreased, input costs and production have increased (Hallberg, 2001; USDA Ag. Statistics, 1964-2002). Production has become concentrated into specific regions of the country and world. In the U.S., irrigation, unlimited growing seasons, government subsidies and cheap immigrant labor have made it possible for Western producers to out compete small-scale producers on the

East coast and in other parts of the country (Browne, 1995; Steinberg, 2002). Increased corporate control of food chain⁴ has resulted (Norberg-Hodge, 2002; *Northeast Farms to Food*, 2002).

Rhode Island agriculture mimics these national trends, showing a decline in the number of farms and farmers in the State over the last century (*R.I. Landuse Trends and Analysis*). The State has also seen a shift from more diversified and edible production to more homogenized cash crops such as turf and horticulture (USDA Ag. Census, 1945-present) (See Figures 1 through 4). The number of farms—from small family farms to large non-family farms—has decreased. In terms of who is doing the farming, over two thirds of the State’s 730 farmers are over the age of 50. Half of them consider farming their principle occupation. The other half maintains an off-farm occupation. There are more male farmers than female farmers by a 6 to 1 ratio (Farms to Food, 2002). In terms of land tenure, the majority of farms in the state are independently owned properties. On a positive note, in terms of farm land preservation, by the year 2000, 43 conservation easements had been made in the State, protecting over 3,300 acres of land. This has been a \$15.2 million dollar investment (Farms to Food, 2002).

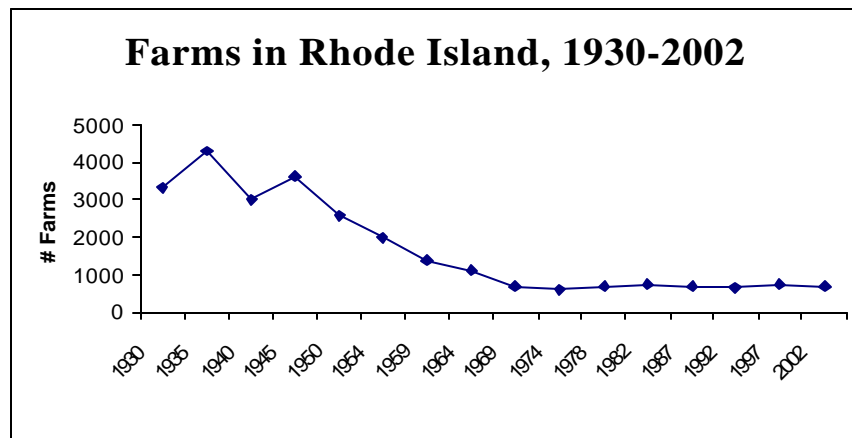


Figure 1. Trend in Number of Farms in Rhode Island, 1930-2002. Source: USDA Agricultural Census, 1945-2002

⁴ 45% of retail food sales are controlled by 5 multinational corporations: Walmart, Kroger, Albertson/Shaw’s, Safeway and Ahold (Farms to Food, 2002).

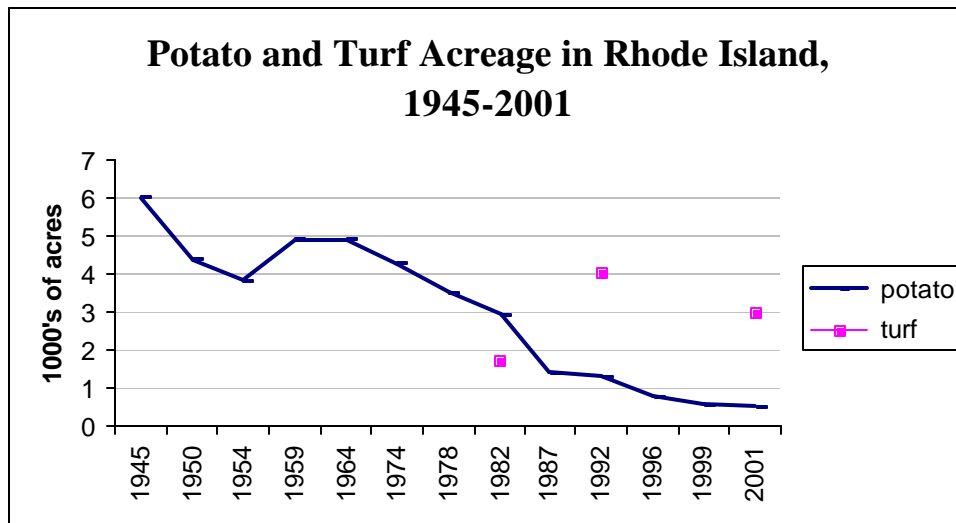


Figure 2. Trends in edible versus non-edible crop production in Rhode Island, 1945-2001. Source: USDA Agricultural Census, 1964-2002; Volpe, 2004.

As production becomes geared toward a global market, crop diversity and community food security diminish (Ahn, 2004). Today, 120 plant species provide 90% of all plant derived human food, oil and fiber needs (Imhoff, 2003; Diamond, 1997). The majority of these crops are produced in extensive and homogenous systems, increasing the threat of pandemic crop losses (Jackson, 2002; Beeman, 2001). Additionally, as production becomes increasingly concentrated in distant areas, food must travel farther distances, often across international borders⁵ (Norberg-Hodge, 2002; Pirog, 2002). Government subsidies have encouraged and maintained systems of such production and distribution⁶ (Schlocher, 2001). Small local growers producing a diversity of edible crops are unable to compete with the prices and quantities of mega-farms of the West. The nature and diversity of crops grown changes or the farm goes out of business (Steinberg, 2001; Halweil, 2002). All of these national agricultural characteristics are represented in Rhode Island.

⁵ In 2000, nearly half of U.S. cropland was planted with crops intended for export (Institute for Ag. and Trade Policy).

⁶ 65% of Federal Agricultural Subsidies go to the 10% of the largest farms (Farm Subsidy Database)

Vertical assimilation, or the control of multiple steps in production, processing and distribution, plays a major role in the design of today's food and agricultural systems (Farms to Food, 2002). Walmart, the world's number one food retailer, grosses annual sales of over \$240 billion dollars (Farm to Food, 2002). Some of the most intense consolidation in the food chain occurs farthest from the farmer—in processing, distribution and retailing. Finding space in a market dominated by industrial giants is a major challenge for local producers (Halweil, 2002). Industry giants can control everything from farmland to food labels (Schlosser, 2001). Meanwhile, the farmer's share of the food dollar continues to decrease as larger portions go towards processing, advertisement, transportation and management (Farms to Food, 2002; Beyond the Last Fencerow, 1996). See Figure 3. Fewer and fewer farmers can earn a living from the land.

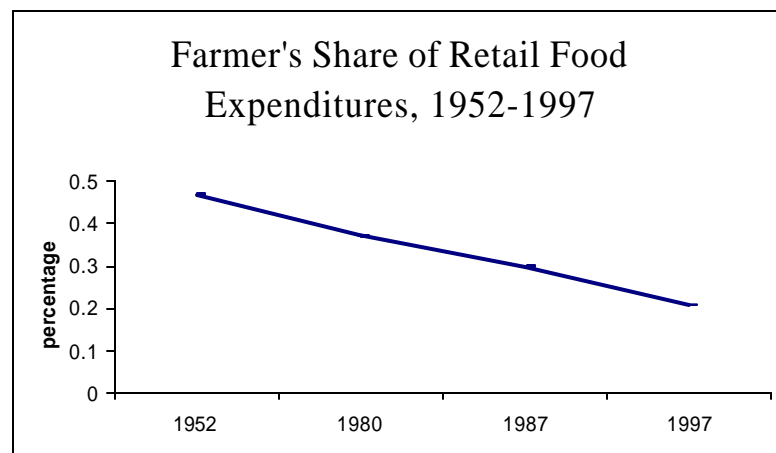


Figure 3. U.S. farm viability according to what percent of each dollar spent on food goes to the farmer. Source: Amory Starr, et al. , 2003

Another component of the contemporary system of food production is a shift in land tenure. A decrease in the presence of local agriculture has dovetailed with a shift towards more absentee land ownership. Throughout the United States, land is increasingly controlled by fewer and more powerful production entities (Steinberg, 2002). This often leads to tighter corporate

control of the food chain. Both simultaneously decrease access to land for cultivation and the ability of local communities to provide for their own nutritional needs.

Top World Food Retailers, 2003

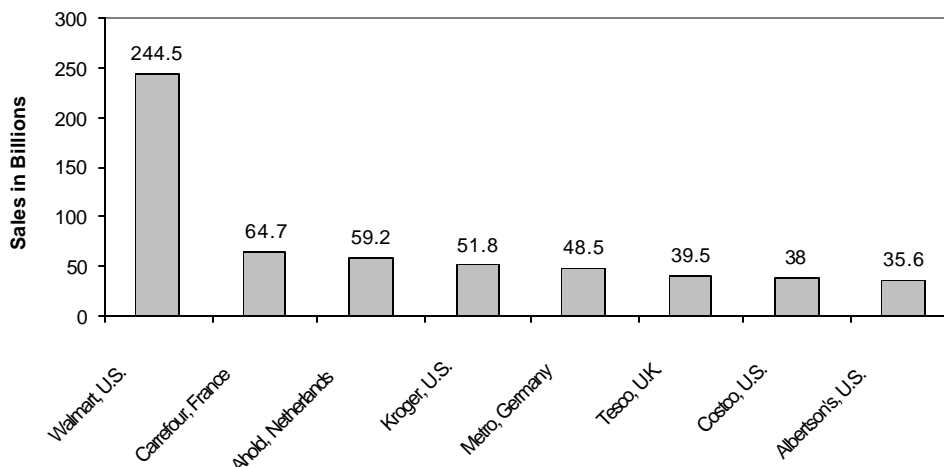


Figure 4: Control of global food retail for 2003. Between 1987 and 1997, the four largest food retailers' share of global grocery sales rose from 17.1% to 26.8%. Source: Supermarket News, www.supermarketnews.com, 2003; Northeast Farms to Food, 2002.

Exemplifying national trends, over the past 20 years in Rhode Island, local growers have transitioned to turf and horticultural production as the profitability of potatoes decreased (USDA Ag. Statistics, Pepper, 2003). Turf offers a higher value per acre in part because of minimal labor costs (Volpe, 2003). Aside from helping to preserve open space and possibly adding to economic security of the state, turf production does little to increase community food security or promote more sustainable food production systems. Meanwhile, pressed between large scale cash-crop production, vertically assimilated markets and a culture that expects foods to be cheap and season-less, local food producers have vanished.

Is there infrastructure for local distribution?

In Rhode Island and across the country, numerous efforts are taking place to preserve and increase localized food production and distribution. Community gardens, farmer's markets, urban farms, Community Supported Agricultural projects (CSA's) and other methods of direct purchasing are bringing production back into the consumer's frame of reference. Fifteen years ago in Rhode Island, there were four farmer's markets. Today, there are 18 in addition to nine CSA's (Susi, 2003).

Other programs such as *Harvest New England* are creating the infrastructure for a more localized foodshed. *Harvest New England*, a program based out of the University of Massachusetts, offers a stipend to major food retailers such as Stop and Shop to carry *Harvest New England* products. All food products bearing the *Harvest New England* label must come from New England farms (Jordan, 2003). The Massachusetts-based non-profit *Red Tomato* also strives to re-establish local distribution connections for small scale farmers. The program links farmers to wholesale outlets such as Whole Foods and Stop and Shop (Oxfam, 2002). Cityfarm, a program run through Southside Community Land Trust in Providence, uses a ½ acre of land to grow food for the neighboring community. These are but a few of the numerous efforts underway to counter the effects of a modern global *foodshed*.

There is great opportunity to expand the amount of food being produced locally. Only 10% of the New England diet presently comes from New England soil and that this number is dropping (Roche, 2003). Land area in the state devoted to agricultural uses has also dropped from over 80% in 1850 to roughly 10% in 1990 (*Analysis of Rhode Island Land Use*). Of that 10%, the majority are being used to produce inedible crops. 77.3% of all value added to the State's economy by the agricultural sector in 2001 came from turf and horticulture (New

England Agricultural Statistics, 2002). Yet the key to realizing the expansion potential is in saving *all* agricultural lands from development: those growing edible as well as non-edible crops. All farms are in danger of development, turf farms included (see figure 2). In addition to saving these lands, abandoned lots, lawns and even golf courses could be used to increase the land area available for local production (Norberg-Hodge, et.al., 2000).

Table 1: Examples of Infrastructure for Localized Distribution

	<i>Description</i>	<i>Marketing and Key Features</i>	<i>Scale of Operation</i>
City Farm at South Side Community Land Trust	Urban farm with individually managed plots. Produce sold at ethnic markets, at weekly farmer's markets and through CSA program.	Retail connections established by individual growers. SSCLT (non-profit) coordinates and staffs farmer's market.	Individuals sell to individuals, retail outlets. ½ acre farm producing roughly 4,000 lbs of fresh produce per growing season
Arcadian Fields CSA Program	Shares of season's harvest purchased in pre-season by CSA members.	Less than retail prices. Connection established by farmer, often through word of mouth.	Single farmer sells to individuals and community: 3 acres, providing roughly 30,000 lbs. of fresh food annually.
New Rivers Restaurant in Providence, RI.	Restaurant purchases local produce from farmers or through wholesalers. Farmers frequently come to restaurant to sell goods.	Networking with other restaurants to locate producers. Restaurant prioritizes local food purchases	Multiple farmers sell to single restaurant. During R.I. growing season, up to 50% of foods are locally sourced.
The Red Tomato Catering Company	Non-profit produce brokerage for local farmers.	Purchases coordinated by central office. Mainly wholesale transactions. Educational component	Multiple farmers sell to multiple restaurants, local and chain supermarkets. Based mainly in Massachusetts.

Pioneer Valley Growers Association	Centralized warehouse, cooling equipment and trucks link. Assoc. sells to large-scale buyers throughout the Northeast	Wholesale transactions. Cooperatively managed. Educational component. A member of Harvest New England	Approx. 80 farmers sell to independent and chain supermarkets farmers markets, and produce wholesalers. Between \$1.8 and \$3.2 million dollars in sales over last 10 years.
Harvest New England	Non-profit marketing program identifies buyers, offers incentive for carrying HNE products.	Contracts with supermarket chains established by marketing specialist. Stipend for involvement supplied by USDA funding.	Unavailable to date.

Methodology

My research lays the foundation for a community food assessment for the Rhode Island region. By answering the question of *what are the barriers to the production and distribution of locally grown foods in the Providence Region*, I have needed to first ask the following questions: what is currently being produced, what could be produced, what are the seasonal limitations of production and how do local foods reach the market. To narrow the focus of my study, I have looked only at fresh fruits and vegetables produced in Rhode Island. Because of the manner in which data is collected for the USDA agricultural census, I have based my research on food production within the state though ultimately, my goal is to promote food production on a regional scale. The term ‘local’ is loosely defined to mean food gathered from within a 0-60 mile radius of the city of Providence. I did not look at meat, dairy or any value-added foods.

Interviews with Farmers

From a directory of farms listed on the Rhode Island Division of Agriculture website, I collected a list of all Rhode Island farms growing fruits or vegetables. I placed phone calls to 42 of these farms. When possible, I completed the questionnaire found in the *Appendix*.

Interviews with Independent Markets and Grocery Stores

I called all ‘market’ and ‘supermarket’ listings in the Providence yellow pages to ask how they source fresh produce. I only called listings within the Providence city limits. I also talked to Jessie Cardarelli, produce manager at Eastside Marketplace. Eastside Marketplace is a locally-owned supermarket on the Eastside of Providence. I sought to understand Mr. Cardarelli’s perspective on the limitations of local sourcing, including seasonality, quality, convenience and customer demand.

Interviews with Chain Supermarkets

I spoke with managers for produce sales at three supermarket chains: Bob Lavoy, produce manager for Stop and Shop on Manton Ave, Bill Brophy, vice-president of produce sales for Stop and Shop Corporation, Skip White, produce category manager for Shaw’s Supermarkets, Inc, John Rao, Produce Team Leader for Whole Foods and Greg Zagwyn, produce manager for the Whole Foods Market regional warehouse in Waltham, MA. I asked questions about the availability, the demand and the limitations of locally grown foods. For interview protocol, see *Appendix*.

Interviews with Produce Wholesalers

I spoke with nine produce wholesalers in the Rhode Island region. I also spoke with a wholesaler who distributes to other wholesalers across the United States. Locally, I spoke to representatives from Tourtellot, Melo's Fruitland, Ralph Calise Fruits and Vegetables, Robert's Precut Vegetables, Nasiff F. Jr. and Co, A.T. Siravo, Vingi J. and Son and Roch's Fruits and Vegetables. I spoke with an employee of Sid Wainer and Son Specialty Produce in New Bedford. I interviewed Christopher Cirulli, a produce wholesaler/importer on the U.S./Mexican border. I asked each wholesaler what method he used for sourcing fresh produce. I attempted to gauge his or her degree of interest in and ability to source from local producers. I tried to understand the tradeoffs between direct purchasing from local farmers and wholesale purchasing from other providers, as well as how the scale of the operation local sourcing ability.

Observations of Consumer Preference

At Eastside Marketplace I found Rhode Island grown potatoes being sold next to Idaho potatoes. The two products were identical in weight, package design and price. To understand why potatoes shipped from Wisconsin sell for the same price as potatoes grown in South County, Rhode Island, I labeled the local potatoes with a sign reading "Locally Grown" and left the Idaho potatoes unlabeled. I tracked sales of the two types of potatoes and compared these results to days when there was no sign.

I also surveyed 210 students in the Refectory Dining Hall at Brown University on a night when Rhode Island grown squash was being served. Myself and two other members from Community Harvest⁷ surveyed students as they exited a buffet line. We asked if they knew the origin of any foods on the line. We also went table to table asking students for their opinions on

⁷ Community Harvest is Brown University Dining Service's effort to increase the amount of food items sourced from local growers. Community Harvest is a student initiated group created in fall of 2002. (www.brown.edu/Student_Services/Food_Services/commharvest.htm).

Brown University Dining Service’s effort to purchase directly from local farms. For results, see *Local Links at Brown University*, located at the end of this paper.

Additionally, for a better understanding of the economic barriers to local food sourcing, I compared food prices at two farmer’s markets (Hope High School and Broad Street) with retail prices on the same day at local supermarkets (Eastside, Stop and Shop and Whole Foods). Unfortunately, a price comparison proved to be difficult. Produce is sold by the bunch at farmer’s markets while it is sold by the pound at supermarkets. For this reason, I do not present the findings from my price comparisons.

Table 2: Summary of Methods

Interviews	Farmers, consumers, produce wholesalers, produce retailers, farm lobbyists and regulators
Literature Survey	USDA Agricultural Census, 1964-2002, food system literature, U.S. agricultural policies
Market Study	Eastside Marketplace Potatoes and Butternut Squash Experiment, Customer interviews and price comparisons at Hope High School and Broad Street Farmer’s Markets (September 2003-November 2003)
Dining Hall Study	Student surveys and observations at Brown University Refectory Dining Hall
Conferences	Community Food Security Annual Conference (November 2004), Boston Food Project Annual Conference (April 2003, 2004), R.I. Division of Agriculture Farm Viability Meetings
Site Visits	Farms, supermarkets, neighborhood markets, farm stands, distribution warehouses

Results

Interviews with farmers

I contacted 29 farmers, completing 14 full interviews. I had limited success placing phone calls to listings in the Farm Directory⁸ as a number of farmers expressed frustration with “yet another survey”. Overall, I found the most pertinent question was whether or not the farm was still a farm and if so, if it was still producing food. Of the 14 farmers with whom I spoke, 4 were no longer in business. When asked what inhibited local food production in Rhode Island, all 14 mentioned prohibitive land prices and pressure from developers to sell their land.

Farmers who were still in business stated their preference for selling retail over selling wholesale. Most farmers interviewed currently operate farmstands, participate in farmer’s markets or run CSA’s. It is likely those farmers already engaged in direct marketing were more willing to talk with me than farmers not engaged in direct retail. Two farmers explained to me ways in which they had established direct purchasing relationships with restaurants and Eastside Market. Referring to restaurants on Federal Hill, one farmer said: “The restaurants can’t get enough. Anything I bring over to them, they’ll buy because the chefs know the flavor is better” (Kushner, farmer, 2003).

Interviews with Independent Markets and Supermarkets

I placed calls to all ‘market’ listings in the Providence yellowpages to ask how these businesses obtained their fresh produce. I had limited success: four numbers were no longer in service suggesting a rapid turnover of ownership. I had a difficult time getting in touch with a manager or owner who could answer my questions. I also found language barriers. Most were

⁸ Farm Directory is the listing of farms posted on the website of the Rhode Island Division of Agriculture (www.state.ri.us/dem/programs/bnatres/agricult/farms99.html)

ethnic markets and the primary language was not English. In effect, I was only able to converse with employees of 15 markets out of 42 that were listed. Of these 15, I conducted 13 in Spanish. For the interview questions, see appendix A.

Of those 15, all sourced their produce through jobbers⁹ who source through either Tourtellot, A.T. Siravos or from Boston Terminal Market. None purchased fresh produce directly from a regional farmer. Interviewees showed mixed interest on the topic of locally grown foods and all commented that price was the first criteria for determining their purchases. The majority (12) mentioned that they either did not know the origin of the produce because it was unlabeled or were uncertain because the country of origin changed frequently and they were unable to keep track.

Jessie Cardarelli, produce manager of Eastside Marketplace, sources the majority of his fresh produce from national produce wholesalers such as C&S Wholesale Grocers, Inc.¹⁰. He noted the advantages an independent supermarket has over a chain supermarket in being able to source locally: “The nice thing about having a small store,” he said, “is mom and pop vendors can sell to us. We make the decisions.” According to him, the limitations to local sourcing are growing seasons, the expense of signage, licensing and health certification, inability to meet the demand as well as customers who want “everything all the time”.

Mr. Cardarelli also mentioned his preference for working with local growers over large-scale distributors, saying: “It’s so much more human... These guys (local farmers) want to make sure we’re happy and if we aren’t, they always make up in full. They’re proud of their product”. He also confirmed that there is more demand for local produce than there is a supply: “(Eastside Marketplace) can’t get enough local produce.” When I asked about the MacCoun apple, a local

⁹ The term ‘jobber’ refers to the food purveyor who purchases food from the local wholesaler and then delivers it to neighborhood markets.

¹⁰ C&S Wholesale Grocers, Inc. is the second largest wholesale grocer and eight largest privately owned company in the nation (www.cswg.com/welcome.htm).

variety due to arrive around the time of the interview, he said: “People have been calling for the last 2 weeks, asking if the MacCouns are in yet”.

Interviews with Chain Supermarkets

My conversation with Bob Lavoy, produce manager for Stop and Shop on Manton Avenue, suggested local sourcing is too cumbersome for larger market operations. Interestingly, Stop and Shop’s website claims that their stores offer “a large selection of locally grown foods” (www.stopandshop.com). On two visits I also noted a sign hanging in the produce isle reading “LOCALLY GROWN”. Despite these claims, I was unable on both of these visits¹¹ to locate any produce grown within Rhode Island. When asked if anything was local or from Rhode Island, Mr. Lavoy confirmed saying: “No, nothing. Nothing at all. We order by commodity, not by where something comes from.” (Lavoy, 2003).

Higher level management at Stop and Shop and Shaw’s identified for me their main barriers to local sourcing. Foremost, they said local production cannot meet their demands in terms of quantity, quality and year-round availability. They both claimed to have loyalty to the providers who could guarantee them year-round product. They both referred to purchasing relationships which had gone on for decades, expressing an uncertainty as to whether these providers would tolerate them sourcing from local providers for only several months of the year (Skip White, 10-30-03; Bill Brophy, 11-16-03, personal communication). As storefront operations, regional warehouses, processing plants, trucking operations and agro-industries merge, local sourcing becomes less likely. Supermarket chains establish their purchasing agreements long before a local farmer’s tomatoes ripen.

¹¹ Dates of store visitation: September 29, 2003 and October 10, 2003

They also mentioned that local produce is rarely hydrocooled¹². Non-hydrocooled produce has a shorter shelf life, requiring quicker turnover. These supermarkets lose a higher percentage of local produce if they are unable to move it quickly because once it wilts, it loses its appeal to customers.

A produce manager for Whole Foods noted the convenience of connecting to local growers through the internet, saying: “The web has been extremely helpful if you know the item you want. Several farmers are fairly tech savvy or are aware of how the internet can help them so they set up their own web sites” (Putnam, 2004).

Both independent and chain supermarkets mentioned the inability to announce sales in advance for local produce. This is seen as an impediment to the normal marketing routine. The regional climate is less predictable than a climate controlled greenhouse in California. For this reason, local producers cannot guarantee when their product will be ready in the same way that most West coast producers can. Supermarkets need to be guaranteed two weeks in advance that a definite quantity and quality of product will be available in order to run a sale.

Interviews with Produce Wholesalers

My finding from talking to produce wholesalers was that the scale of the operation determines the level of interest in and ability to source locally. The size of the wholesaler also determines whether or not the wholesaler already owns the food being produced. Large scale wholesalers are far less interested than small wholesalers in collecting products from local producers because of quantities of scale. It is time consuming to source from multiple farmers to obtain a threshold of product. The largest of the wholesalers I interviewed, Cirulli Brothers in Arizona, tried to explain the scale at which Walmart, a competitor of his, operates: “There have

¹² Hydrocooling is a process by which recently picked crops are rapidly cooled through a piece of machinery, slowing the breakdown process and extending the shelf life.

been so many consolidations in this industry. Wholesalers are getting bigger and bigger everyday but Walmart is by far the biggest. They have stores around the world and can ‘load back¹³, both ways. In one case they needed 25 jets to get a shipment to Argentina so they went out and bought them.” (Cirulli, 2004).

Smaller, local wholesalers lamented that local producers don’t pool their goods, claiming that if farmers did so, they could reach the threshold quantities local wholesalers desire. “The farmers don’t work together.” One wholesaler said, “They don’t talk.” This same wholesaler claimed that farmers need greater consistency of product. “Sometime stuff comes in and it’s great. Other times, it’s not. If farmers were to have a label, they would be held to a more consistent product. They would stand a better chance against the Doles and Del Monte’s of the world.”

Consumer Survey

See Appendix: *Local food links at Brown University* for results from a student survey at the Brown Refectory Dining Hall.

Experiment at Eastside Marketplace

Results from the Potato Experiment strongly suggest that when customers are aware of an option between a local product and a non-local product and if the price difference is comparable, they will choose the local product. Results from the experiment also suggest there is potential for increasing the sales of local produce in Providence markets through improved labeling campaigns. On the days without the “Locally Grown” sign, customers purchased, on average,

¹³ A food distributor “loads back” by stocking ships, airplanes, or semi-trucks for the return trip. This tactic is possible for distributors who run very large scale operations which span distinct growing regions.

4.8 more Rhode Island grown potatoes than Dole brand Idaho potatoes. On days with the sign, customers purchased 22.8 bags more of Rhode Island grown potatoes than the Dole brand¹⁴.

Table 3: Eastside Marketplace Experiment

	Mean # of sales	N = 8 days
Narragansett Brand Potato (grown in Rhode Island)	28.13	P = 0.008
Dole Brand Potato (Grown in Idaho)	14.38	
Acorn Squash (Grown in Wisconsin)	7.13	P = 0.05
Butternut Squash from Wishington Farm, Little Compton, R.I.	12.38	

Conclusions

What are the barriers to the production and distribution of locally grown foods?

From these investigations I conclude there is more demand for locally grown food than there is a supply. Developing infrastructure for localized distribution will increase the availability of locally grown foods, bringing consumers into the circle of local ecology. If we consider that only 10% of the New England diet presently comes from New England soil and that this number is dropping (Roche, 2003), localizing the foodshed should be a top priority. A primary stated goal in the *Farm, Forest and Open Space Act* (Rhode Island Law, 44-27), is the maintenance of local food production close to metropolitan centers. The act allows agricultural

¹⁴ A Wilcoxon Sign-Ranked test was used to calculate the p value.

and forest lands to be assessed according to their current use, which may reduce the likelihood that property will be sold for development. As made evident by this legislation, localized food production and the open space it provides is crucial to the security and wellbeing of Rhode Islanders.

The ease and variety offered to us by the current system of food production and distribution appears to be the greatest barrier. From producers to consumers, it is difficult to change consumption habits and purchasing relationships, especially if these changes are initially more expensive. Our food production system may be deeply rooted, but it is not secure. While it is difficult to envision a system for which there is no historical model, it is necessary that we do so.

I have also realized that retaining and revitalizing a local foodshed requires more than developing channels for distribution. Efforts to preserve agricultural lands through the purchase of development rights are essential to the long term survive of regional food sources. The R.I. Division of Agriculture, along with groups in the state, is currently working to retain agricultural lands through the purchase of development rights. Lands with purchased development rights (PDRs) are zoned as agricultural, whether or not the farm is economically viable. Funding for these programs is the main limitation. Improving farm viability, whether that be through agrotourism or the development of niche markets, is critical to long term community food security. Turf lands as well as edible crop lands are threatened by encroaching development (see figure 2). Increasing access for low income and less mobile members of the community is also an important part of localizing the foodshed. The Rhode Island Division of Agriculture is currently helping to increase access through a Women, Infant and Children (WIC) Farmer's Market program as well as grants which will enable more senior citizens to participate in farmer's markets.

Table 4: Summary of Research Findings

	Interest in increasing amount of local foods sold or purchased?	Perceived limitations to local production/distribution	Financial benefit of localized distribution or purchasing	Existing or developing local purchasing infrastructure
Farmer	yes	Complicated delivery schedules, preference for direct marketing	Direct sales are most profitable. Wholesaling is less profitable than retailing.	CSAs, FMs, farm stands, direct sales
Consumer	yes	Availability, seasonal limitations	CSA- yes FM- depends Supermarket-no	CSAs, FMs, farm stands, some restaurants
School Cafeterias	yes	Lack of program coordination	Competitive pricing	Community Harvest at Brown
Independent Markets	yes	Lack of information, awareness	(limited information)	City Farm to Southside Groceries
Chain Supermarkets	no	Non-hydro-cooled produce, quantity, season availability, loyalty to year round suppliers	Varied. Profitability is crop and season specific. Coordination burdensome.	Harvest New England though limited participation from R.I.
Produce Wholesalers	varied	Product quality (hydrocooling), consistency of product, complicated ordering	Varied. Profitability is crop and season specific.	From July through November, particularly for sweet corn, tomatoes, apples
Farm Lobbyists	yes	Lack of existing infrastructure, health regulations, retaining and obtaining agricultural lands	Expected long term financial benefit to the local economy.	Numerous agriculture groups have existing initiatives for increasing local sourcing
Regulators	yes	Limited funding, need to be politically neutral between edible and non-edible crop producers		

Overall, I conclude that the medium of food is an ideal medium for creating change. Edible crops are far more effective in linking urban residents to their rural surroundings than non-edible crops such as turf, though a transition from non-edible to edible crops needs time and the persuasion of consumer demand. Food systems are changing, bite by bite (see chart on page 11). Everyday food has the power to bring us together. It has the power to nourish not only our bodies but the social and natural environment as well.

Recommendations

I would like to reiterate that while I have based my research on food production within the state of Rhode Island, my goal is to promote food production on a regional scale. That said, the “Rhode-Island Grown” campaign needs to be fortified. I recommend that farmers, wholesalers, retailers, non-profits and the Rhode Island Division of Agriculture increase their efforts to make ‘local’ a brand-name. This could be a unifying symbol found on every crate, barrel and delivery truck bumper. The program should be expanded to recognize the value of all local farms, even those outside the state line. The message that a food product is locally grown needs to be seen at all points of transaction. A customer should always be aware that s/he is purchasing not only an apple, for example, but a share in Rhode Island’s future.

Regional growers have what no Californian or Chilean mega-farm has. They have the fact that they are our neighbors, our classmates, our cousins and our customers. The food they produce is more valuable to our community than *any* outside production. Judging from interviews and the Eastside market study, the demand for locally grown foods exists. I

recommend we capitalize on this demand to the greatest extent possible. The value of a “local” brand is potentially unlimited given the label and product are consistent and persistent.

A job position should be established for coordinating the promotion and distribution of locally grown foods in the Providence metro area. I recommend that the R.I. Division of Agriculture help to establish this position. The coordinator should be charged with connecting local growers and food service institutions. Expanding marketing options for local growers will minimize post harvest losses and in turn increase farm viability. The goal of the coordinator should be to increase the presence and awareness of “local agriculture” in the city through a wide network of purchasing relationships. Quality and diversity are more important than amount of product transferred.

In order to execute the goal of more localized food transactions, a regional clearinghouse of locally grown goods should be created. Ideally, this clearinghouse will be internet based

Critical to the long term survival of local food producers is ensuring a market for local goods. Critical to the success of a clearinghouse is that offers a highly efficient transaction to both the farmer and the consumer. The clearinghouse must cater to the needs of the urban market while maximizing the farmer’s return on the dollar, minimizing time expenditure from both parties.

A coordinator position and local clearinghouse will also help to align regional production with the needs of local ethnic markets. One wholesaler explained to me that there is an enormous demand for ethnic produce is not being sufficiently met by wholesalers sourcing from large and distant producers. The larger the channels for produce transfer, the less capable these channels are of catering to niche markets. Again, the coordinator position and local clearinghouse will help local growers to utilize an untapped market.

Agriculture of the entire geographic region of Southern New England must be equally promoted. I recommend that RIDEM Division of Agriculture commit to *all* regional farming efforts and to seek parallel language from Connecticut and Massachusetts Divisions of Agriculture. Embracing the concept of a *foodshed* means allowing Connecticut and Massachusetts farmers to participate in the Rhode Island farmer's market WIC program. As Maryjo Barrington of the Farmer's Cooperative in East Massachusetts put it: "Our biggest competitor is not Connecticut. It's New Jersey, Canada, California and Mexico." Along the same note, Rhode Island needs to assert a stronger presence in the *Harvest New England Program*, possibly mandating that a minimum amount of product carrying the label must from Rhode Island farms.

Providence food service institutions need to articulate, in writing, a preference for locally grown foods. An advocacy campaign for achieving this should be coordinated by Community Harvest at Brown University as well as the food systems coordinator. These statements of preference will be passed onto respective food suppliers. Statements will be non-obligatory. This campaign will strive to educate the public on the needs of the farmer and the crisis of American agriculture. A component of this advocacy campaign will encourage a mandate which asks all state agencies to purchase locally grown foods to the greatest extent possible.

Lastly, a food policy council¹⁵ is needed in the Providence-metro region. Food system issues—from pesticide runoff to obesity—affect every member of our community. This council will help bring together a diversity of stakeholders surrounding food system issues (community food security, farm viability, GMO's, chemical inputs, etc). Examples of successful food policy councils exist around the country. A food policy council will help to expand the discussion

¹⁵ A multi-sector government sponsored forum that addresses food system issues (Northeast Farm to Food, 2002).

beyond farmers and employees at the Division of Agriculture. The council will make policy recommendations to the state and federal government. Only through increased participation in the decision making processes can goals of farm profitability, land stewardship, community health and community food security be reached.

Table 4: Summary of Goals and Recommendations

<i>Goal</i>	<i>Recommendation</i>	<i>Implementing Entity</i>
Increase the market for locally grown foods	Make <i>local</i> a brand name	Farmers, produce retailers, wholesalers, state officials
	Create job position for linking local producers with local markets (Food System Coordinator)	R. I. Division of Agriculture, The Rhode Island Foundation, private funding
	Encourage food service institutions to purchase locally	Rhode Island Food Policy Council, Food System Coordinator, Brown University
	Organize direct purchasing cooperatives	Brown University Dining Services, Food System Coordinator
	Mandate local food purchases by state agencies	Rhode Island General Assembly
	Develop agricultural educational programs	Non-profits, schools, R.I. Food Policy Council
Increase and diversify local production	Continue with the purchase of development rights	R.I. Division of Agriculture, Land trusts
	Respond to the array of	R.I. Division of Agriculture,

	<p>farmer's needs (farm vitality)—K.A.</p> <p>Improve relay of information between growers and markets</p> <p>Locate funding for equipment purchases (hydro-cooling)</p> <p>Offer incentives to young people to enter farming careers</p>	<p>Food System coordinator</p> <p>R.I. Division of Agriculture, USDA, Food System Coordinator</p> <p>University of Rhode Island, R.I. Division of Agriculture, R.I. Rural Conservation and Development Council,</p>
Expand access to local and organic foods	<p>Continue WIC and Senior Farmer's Market programs</p> <p>Establish web-based clearinghouse for locally grown foods</p>	<p>R.I. Division of Agriculture</p> <p>Food System Coordinator</p>
Promote the concept of a regional <i>foodshed</i>	<p>Encourage cooperation between R.I., CT and MA growers</p> <p>Promote regional production, seek parallel language from neighboring states</p>	<p>R.I., CT and MA Divisions of Agriculture</p> <p>R.I., CT and MA Divisions of Agriculture, Land Trusts, Farm Advocacy groups, Food Systems Coordinator</p>

KA= Kenneth Ayars, Chief of R.I. Division of Agriculture

Appendix

Interview for Farmers

1. What types of products do you currently produce?
2. Do you currently sell at an existing Farmer's Market?
3. What outlets do you use for marketing your products?
4. What percentage do you lose in post-harvest waste?
5. What percentage of your produce do you sell in Rhode Island?
6. Do you operate your own roadside market?
7. What percent of your sales is produce from your farm?
8. Do you have plans for expansion of any part of your operation in the next 5 years?

Interview for Small Markets

1. Where do you buy your fresh fruits and vegetables from?
2. Do you buy directly from any R.I. farmers? Do you know any farmers personally?
3. Are any of the fruits or vegetables you sell grown in R.I.? How does this change seasonally?
4. Do you label these items as being 'local'?
5. Do your customers ask for local produce?
6. Are you interested in buying more locally grown produce?

Interview for Eastside Marketplace

1. How do you order produce?
2. How does this ordering process vary according to season?
3. What is your motivation to buy local?
4. Do you think you could buy more locally grown produce?
5. Do you notice significant variation in quality of the produce according to the distributor?
6. Do you notice price differentials according to the distance the produce has traveled?

Interview for Independent and Chain Supermarket Producer Managers

1. How do you source produce for (store name)?
2. What percent of this produce comes from the New England region, and how does this vary seasonally?
3. Do you see a price differential according to the distant food items travel?
4. How do you feel about 'origin of product' labeling?
5. Do customers express an interest or ask for locally grown foods?
6. In your opinion, what are the barriers to more local sourcing by your company?

Local Food Links at Brown University

In the fall of 2002, Brown University Dining Services (BuDS) established Community Harvest. The program aims to increase the amount of food purchased from local producers. In the course of two seasons, the program has grown in magnitude. Three years ago, the majority of apples were purchased from out of state; in the fall of 2003, all apples came from orchards in either Rhode Island or Southern Massachusetts. Other local foods which have been purchased through the program include tomatoes, squashes, corn, peaches, and plums.

Community Harvest is an example of the development of local purchasing infrastructure in the Providence region. Brown University is capable of implementing the Community Harvest program because it is a self-operated institution, and thus can independently determine how foods are sourced. The majority of purchases made are wholesale although some are retail. While farmers make less money in wholesale trade, they benefit from convenience and expanded marketing options. Creating new channels for food distribution—such as direct sales between farms and area food service institutions—brings local foods to a greater number of community members.

Community Harvest benefits the University by providing students with fresh, seasonally appropriate foods and with the opportunity to learn about the local environment. Through Community Harvest, students come to understand the season and climatic conditions of the region. These connections can enrich the college experience by broadening increasing an awareness of the ecological process which support us as well as a connection to the unique setting of Rhode Island. Many students spend four years on College Hill without ever venturing to a nearby farm or open space. Placing locally grown foods on the menu offers an incentive to step beyond the confines of campus.

I spoke with Peter Rossi, Assistant Director of Purchasing and Virginia Dunleavy, associate director of BuDS, to identify successes and challenges of the program to date.

The primary difficulty with local food sourcing involves timing and communication. A farmer needs to know what BuDS intends to buy ideally in the winter months when seeds are being ordered. BuDS can also communicate an intent to purchase when product is ripe (July through November). At this point there is less of a guarantee that product will be available.

BuDS works on a 5-week menu cycle where purchases are determined five weeks in advance. Last minute purchasing decisions are difficult and unlikely. Five weeks, however, is not sufficient time for the farmer to grow the desired crop. Synchronizing production and purchasing will be necessary for a successful program. As the program gains momentum and consistency, hopefully, coordination will improve. I am currently working on relaying prospective ordering information from BuDS to local farmers for the fall of 2004.

Another barrier to local purchasing efforts is the amount of plate waste. Students generate plate waste by serving themselves food items they do not consume. This food gets discarded, increasing food costs for BuDS.¹⁶ When locally grown foods are less than competitively priced, BuDS is less inclined to buy them. Individuals as well as student groups in addressing the issue of food waste in Brown University dining halls. Campaigns are being planned. An improved dining hall layouts which discourages 'over-serving' is being considered as part of an upcoming building renovation.

¹⁶ BuDS creates each plate for a maximum of \$2.25 (Dunleavy, 2004).

Because few efforts have been made to quantify student's response to the Community Harvest Program, several members, including myself, spent the evening of November 14th, 2004 at the Refectory Dining Hall conducting a survey.

Two members circulated the dining room, randomly joining tables to ask the following questions. We only mentioned that we were members of a student group and that we would like to ask a few questions. I have grouped responses according to affirmative or non-affirmative.

We surveyed 49 students for the following questions.

1. Do you know the origin of any item on your plate tonight?	Yes: 7 No: 42
2. How do you feel about local items on the menu?	Supportive: 32 Indifferent: 9 Supportive with qualifications: 8
3. Have you seen other local items on the menu this semester?	Yes: 34 No: 15
4. Would you like to see more?	Yes: 40 No or Indifferent: 9
5. Did you visit the farmer's market this year?	Yes: 25 No: 24
6. What do you know about Rhode Island agriculture?	Any Response: 7 Nothing: 42

Another member stood at the end of a buffet line in which locally grown acorn squash was being offered (with a labeling identifying it as part of the Community Harvest effort). This representative asked each eater exiting the line if "anything on the buffet line this evening was locally grown?" We framed the question to gauge student's awareness of the program. Of 210

students questioned, 65 responded that there was something local on the line. 145 said they did not know or that there wasn't.

In conclusion, while many students hadn't previously thought about the concept of local food, they were interested in the idea. 65% of the students were outright excited to have more locally grown foods offered in the dining halls. Not all students were aware that a program existed, suggesting more publicity needs to take place. 30% of the responses had not noticed local items at any other time in the semester even though *all apples* offered throughout the fall were from nearby orchards.

Participation in the Wednesday farmer's market on Wriston Quad can be increased, as half of the students interviewed had never attended. The Wednesday farmer's market compliments the local purchasing program by bringing farmers and students face to face, increasing the visibility of the program as well as generating excitement about fresh, beautiful foods. Farmer's market attendance is expected to increase as its presence becomes more routine. Expanding the selection of goods offered at the market may also draw more students in.

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