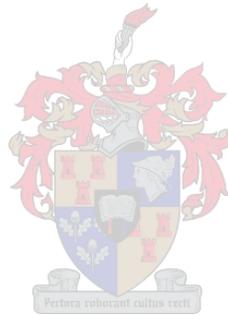


Sustainable Cities and Local Food Systems: A partnership between restaurants and farms in Portland, Oregon

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Declaration

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Abstract

Local food systems are growing in scope and impact in communities around the world in an attempt to solve many of the environmental, social, and economic costs of global food production and conventional food chains. Communities may attain greater sustainability by reconfiguring their relationship to agriculture and food but critics of local food systems doubt its ability to fundamentally change the predominant global agricultural system due in part to the limited transformative range. Furthermore, local food systems are often viewed in reference to “food miles”, a concept that is oversimplified and ignores the complexity of food supply chains. This paper is motivated by these larger debates about local food systems and addresses a local food system in Portland, Oregon. The research for this paper is based on interviews conducted in the restaurant and farming sectors in the Portland area in an effort to learn what motivates restaurants and farms to engage in local partnerships, the challenges and opportunities they face selling and buying local food, and the practices along their food supply chains. The objective of this study is to understand the degree to which restaurant farm partnerships in Portland are supporting a sustainable local food system and to help identify strategies and opportunities for more restaurants and farms to engage in local partnerships. Furthermore, this research provides pragmatic examples for other communities interested in stimulating a local food system based on direct marketing. The findings of this study suggest Portland’s restaurant farm partnerships are making a small, yet significant effort to encourage innovative environmental and social practices, address the sustainability of urban and rural Portland, and deepen the food miles debate. Further efforts need to be made by the restaurant farm partnerships in Portland to expand on restaurant’s sustainable practices, find more innovative transportation means, and improve consumer education.

Opsomming

Plaaslike voedselstelsels neem in gemeenskappe oral in die wêreld in omvang en trefkrag toe in 'n poging om baie van die omgewings-, maatskaplike, en ekonomiese koste van wêreldwye voedselproduksie en konvensionele voedselkettings op te los. Daar word beweer dat gemeenskappe moontlik groter volhoubaarheid kan bereik deur rekonfigurering van hulle verhouding tot landbou en voedsel, maar kritiek oor plaaslike voedselstelsels trek hulle vermoë om die heersende wêreldwye landboustelsel in wese te verander in twyfel, deels weens hulle beperkte transformatiewe reikwydte. Voorts word daar dikwels na plaaslike voedselstelsels gekyk met verwysing na “voedselmyl”, 'n begrip wat oorvereenvoudig is en wat die kompleksiteit van voedselaanbodkettings negeer. Hierdie referaat word gemotiveer deur hierdie groter debatte oor plaaslike voedselstelsels en is gerig op 'n plaaslike voedselstelsel in Portland, Oregon. Die navorsing vir hierdie referaat is gebaseer op onderhoude wat in die restaurant- en boerderysektore in die Portlandgebied gevoer is in 'n poging om vas te stel wat restaurante en plase motiveer om betrokke te raak by plaaslike vennootskappe, die uitdagings en geleenthede waarvoor hulle tydens die koop en verkoop van plaaslike voedsel te staan kom, en die gebruike ten opsigte van hulle voedselaanbodkettings. Die doel van hierdie studie was om begrip te kry van die mate waarin restaurant-plaasvennootskappe in Portland 'n volhoubare plaaslike voedselstelsel ondersteun en om te help met die identifisering van strategieë en geleenthede vir meer restaurante en plase om betrokke te raak by plaaslike vennootskappe. Daarbenewens verskaf hierdie navorsing pragmatiese voorbeelde vir ander gemeenskappe wat belang stel in stimulering van 'n plaaslike voedselstelsel gebaseer op direkte bemarking. Die bevindinge van hierdie studie dui daarop dat Portland se restaurant-plaasvennootskappe 'n klein, dog beduidende poging aanwend om innoverende omgewings- en maatskaplike gebruike aan te moedig, die volhoubaarheid van stedelike en landelike Portland aan te durf, en die voedselmyl-debat te bevorder. Verder moet die restaurant-plaasvennootskappe in Portland pogings aanwend om restaurante se volhoubare gebruike uit te brei, meer innoverende vervoermiddele te kry, en opvoeding van verbruikers te verbeter.

“To make a sustainable city, one must begin somehow and I think the beginning must be small and economic. A beginning could be made, for example, by increasing the amount of food bought from farmers in the local countryside by consumers in the city. As the food economy became more local, local farming would become more diverse; the farms would become smaller, more complex in structure, more productive, and some city people would be needed to work on the farms. Sooner or later, as a means of reducing expenses both ways, organic waste from the city would go out to fertilize the farms of the supporting region, thus, city people would have to assume an agricultural responsibility and would be properly motivated to do so both by the wish to have a dependable supply of excellent food and by the fear of contaminating that supply. The increase of economic activity between a city and its sources would change minds (assuming, of course, that the minds in question would stay put long enough to be changed). It would improve minds. The locality, by becoming partly sustainable, would produce the thought it would need to become more sustainable” (Berry 1993:25-26).



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1. Introduction

Portland, Oregon is involved in countless transformational efforts to become a more sustainable city. This paper will focus on one effort currently being addressed in Portland that may contribute to Portland's transition to a sustainable city: a partnership between Portland's restaurant sector and agricultural sector as a potential means of creating a sustainable local food system. Sustainable local food systems encourage the sustainable production, storage, distribution, and preparation of local food in an effort to create a locally based and self-reliant food economy and advance sustainable development. It is contended that local food systems re-connect consumers with the food they eat and positively contribute to the environmental, economic, and social sectors of a community

Local food systems are growing in scope and impact in Portland, as well as in communities around the U.S. and the world. As local food systems gain momentum, so do the debates surrounding local food. Critics argue that local food systems are not able to fundamentally change the predominant global agricultural system and are limited in their transformative range. Local food systems are often viewed in reference to food miles, an oversimplified concept that ignores the complexity of food supply chains, which involve all the people and resources needed to produce, store, transport, and prepare food products for suppliers and buyers.

Yet, some experts argued that in emerging local food systems we see the promise of a sustainable future; “what we are witnessing in the emergence of the local food economy is changing the idea of what makes for healthy economies – from growth based on commoditizing resources to community stewardship of resource flows” (Sonntag 2008:v). Direct marketing has proved to be an effective means of engaging in local food systems, including restaurant farm partnerships.

The research for this paper is motivated by these larger debates about local food systems and sustainable food chains and addresses the significant number of restaurants and farms in Portland engaging in partnerships selling and buying local food. Restaurant and farm interviews were conducted to learn what motivates restaurants and farms to engage in local partnerships, the challenges and opportunities they face selling and buying local food, and to understand the operations of their entire food supply chain.

The objective of this study is to understand the degree to which restaurant farm partnerships support a sustainable local food system in Portland and to help identify strategies and opportunities for more restaurants and farms to engage in local partnerships. Furthermore, this research provides pragmatic examples for other communities interested in stimulating a local food system based on direct marketing.

The restaurants and farms interviewed for this research are identified in this paper as sustainable pioneers in Portland, individuals with a personal commitment to environmental and social values. Sustainable pioneers are leaders in the community and

encourage creative means of buying and selling food locally. These individuals do not represent the range of approaches, experiences, and attitudes toward local food in Portland, but rather represents a snapshot of varying examples of adoption of sustainable practices by the restaurant and farming sectors.

The findings of this study suggest Portland's restaurant farm partnerships are making a small, yet significant effort to encourage innovative environmental and social practices, address the sustainability of urban and rural Portland, and deepen the food miles debate. Further efforts need to be made by the restaurant farm partnerships in Portland to address the complexity and sustainability of the food supply chain, expand on restaurant sustainable practices, find more innovative transportation means, increase education, and deepen restaurant farm partnerships to encourage greater compassion and logistical coordination.

1.2 Portland, Oregon

Portland is located in the Northwest of Oregon and its metropolitan area is made up of six counties: Clackamas, Columbia, Multnomah, Washington, Yamhill, and Clark County. In 2008, the city's population was estimated to be 575,930 and sits within a larger metropolitan area of nearly two million (Portland State University 2008).

A sustainable city, as defined by Portland's Mayor and City Council, is a city that "meets today's needs without compromising the ability of future generations to meet their needs,

and accepts its responsibility to: support a stable, diverse and equitable economy, protect the quality of the air, water, land and other natural resources, conserve native vegetation, fish, wildlife habitat and other ecosystems, and minimize human impacts on local and worldwide ecosystems” (City Club of Portland 2001:75).

Portland is involved in countless potential transformational efforts to embrace the above principles and become a sustainable city. Voted in 2006 and 2008 by Sustainlane (Sustainlane 2007) as the number one most sustainable big city in the United States, Portland is recognized as an invaluable resource for learning successes, challenges, and innovative means for making a transition to sustainability. Sustainlane ranks the fifty most populous US cities on sixteen areas of urban sustainability: city commuting, metro transit ridership, metro congestion, air quality, tap water quality, planning and land use, city innovation, energy/climate change, knowledge communication, local food/agriculture, green building, green economy, housing affordability, natural disaster risk, water supply, and waste management (Sustainlane 2007). Portland received overall highest ranking, due in large to their land use policies and urban growth boundary created in the 1970’s (Sustainlane 2007).

Portland’s urban growth boundary separates urban land from rural land and encourages density and protection of farm land and natural resources. The agricultural lands outside Portland makes up Portland’s food shed. A food shed is defined as “the region and resource flows that produce the food for a particular population” (Hemenway 2006:1). Portland’s food shed is blessed with rich agricultural land, a diverse landscape, and a

significant number of small farms. Appendix A is a map of Portland's immediate food shed and marks agricultural land and farms that are currently engaged in supplying a reliable and abundant food supply for Portland.

For the purposes of this paper, Portland's local food system is defined in terms of its food shed.

2. Literature Review

2.1 Global food production

Global trends in the production of food have transformed over the last several centuries, with a dramatic change witnessed in the shift from “small-scale farming for local markets to large-scale industrial farming for national and international markets” (Norberg-Hodge *et al* 2000:8). Global food production is characterized by an increase in international trade, modern agriculture, consumer disconnect with where food comes from and how it is grown, and a lack of international regulation and safety.

Since 1961, international trade in food has quadrupled (Singer & Mason 2006). It is estimated that currently agricultural products travel, on average, “1,500 miles to consumers and may change hands up to six times from the point of harvest to dinner

plates” (O’Leary 2008:5). In the global food system, food has become a commodity mass produced thousands of miles away (Norberg-Hodge *et al* 2000). As a result, people in wealthier nations are now able to enjoy food products year-round, rather than seasonally (Singer & Mason 2006).

Modern agriculture is characterized by the large-scale industrial farms in the global food system, which aims for efficiency and volume with production oriented towards distant markets. Modern agriculture relies heavily on high external inputs. Bowler (2002) summarizes the modernization of agricultural systems in three processes: intensification, concentration, and specialization. Intensification describes an increase in both external inputs and outputs of crops and livestock. Concentration “summarizes the competitive market process that drives the least economically successful farm businesses from agriculture and enables their land to be purchased by the remaining, larger, more successful businesses” (Bowler 2002:207). Specialization is about limiting the products produced on a farm in order to concentrate efforts and costs on only a few crops and/or livestock.

Globalization of food production leads to greater consumer ignorance about where food comes from and how it is produced. The lack of knowledge of where food comes from and the lack of regulation and safety from American companies puts consumers at risk. America, like many large nations, has not assured its food safety due to many problems associated with globalization and specifically, America’s dependence on China for food ingredients (Knox 2007). “Chinese manufactures have tried to corner the market in many

food ingredients by under-pricing other suppliers” (Knox 2007:1). This year, contaminated, and often dangerous, food ingredients were imported to the U.S. from China. “The FDA has reported finding pesticides, carcinogens, bacteria, heavy metals, and drugs in imported products worldwide, but because globalization of the world’s food supply chain is a recent development, the long-term health implications are still unknown....Equally troubling is the potential for food terrorism” (O’Leary 2008:4).

The high input, chemical-intensive, monoculture methods of modern agriculture and undermining of food safety, coupled with the high energy use needed to import and export food globally, is often costly to local communities around the world (Norberg-Hodge *et al* 2000:6). Arguments against the global food industry include deterioration of soil health, increase in soil and water pollution, over use of water, loss of biodiversity, disturbance to the food chain, pollution, the loss of livelihoods for small-scale farmers, and diminishing food safety and nutritional value (Singer & Mason 2006). The global food industry is also currently complicated by rising food prices and soaring fuel costs (Pullman *et al* 2008).

Global food production and modern agricultural systems contend to help eliminate world hunger and increase levels of nutrition (Pretty 1995). Yet, the poorest people in the world have yet to witness benefits from modern agriculture. World hunger is not the result of a lack of food production, but rather unbalanced food distribution. The greatest beneficiaries of modern agriculture are large corporate farms in the North, not poor small-scale farmers; “the neo-liberal mantra of feeding the world with cheap food

conceals an unequal subsidy structure favoring corporate farming in the North, and destabilizing agriculture in the south” (McMichael 2006:175). Deumling *et al* (2003:3) argues that “the concentration of the global food production under the control of a few transnational corporations, bolstered by free trade agreements, structural adjustment policies, and subsidies for the overproduction of crop commodities, has created North-South food trade imbalances and import dependencies that underlie a growing food insecurity in many countries.”

As the global food industry continues to grow, environmental, economic, and social impacts that were once witnessed locally are increasingly being witnessed globally and are “irreversible on a time scale of interest to society” (Daily 1999:3). Global food production is considered such a dominant force affecting the planet that without dramatically changing the current food system, achieving sustainability is unfeasible (Deumling *et al* 2003). As awareness of the negative impacts of global food production continues to grow, local communities everywhere are witnessing “the rise of an alternative food system that attempts to exist outside of the mainstream commodity-driven network” (Norberg-Hodge *et al* 2000, Wright & Middendorf 2008:2).

2.2. Local food production

In response to the debates and criticisms surrounding the global food industry, “a small but rapidly growing groundswell of support for local food systems” has emerged

(Norberg-Hodge *et al* 2000:5). Local food systems are growing in scope and impact in an attempt to solve the environmental, social, and economic costs of global food production and conventional food chains by reconfiguring consumer's relationship to agriculture and food (Camas 2008).

Local food systems “aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices and enhance social equity and democracy for all member of the community” (Feenstra 1997: 28 cited in Wright & Middendorf 2008:9). Local food systems are made up of a web of relationships based on dependency and mutual responsibility and free communities and food chains from global dependence “by promoting paths of local interdependence” (Wright & Middendorf 2008:5).

The direct marketing of local foods, food labeling, eat local challenges, farmers markets, Community Supported Agriculture (CSA), and restaurant farm partnerships are ways Americans and countries around the world are engaging in local food systems. In a survey conducted by Harris Interactive, 63% of surveyed U.S. adults “indicated they would spend more for organic, fair trade, or locally sourced food” (Anon 2008a:1). At Cabrillo College, a panel of agriculture marketing experts concluded “if consumers know exactly where their food comes from, and that it is fresher and tastes better because it was produced by eco-friendly operations, then they are more likely to buy it.” (Anon 2008b:1).

Support for local food is increasing as people recognize that such systems can speak to a range of social and environmental problems. Local food systems use less energy, produce less pollution, reduce packaging, encourage greater diversity and soil health, retain money in the local economy, support local job opportunities, improve nutrition, and address food security (Norberg-Hodge 2000). It is argued that sustainable food chains “could significantly reduce environmental damage by creating markets for products that, for example, limit food transport, energy-intensive farming inputs and the use of polluting agricultural chemicals, as well as contribute to thriving local economies” (Wright & Middendorf 2008:8).

The role of the restaurants sector in local food systems is extensively reviewed, analyzed and debated due to the amount of household dollars that are spent eating out both in America and internationally, because of recent efforts on behalf of the restaurant sector to create partnerships with local farms and embrace locally sourced food, and to understand local food systems’ relevance to the world’s culinary evolution. According to a study completed by Sonntag, “restaurants and food service venues have the greatest capacity – the knowledge, skills, and pricing structure – to deal with the variety offered by small sustainable producers” (2008:ix). Furthermore, Clark (1990) argues that restaurants and consumers, who learn where their food comes from and meet the people who grow their food, develop an interest in the future of farms, rural communities, and the environment” (Clark 1990:121).

Today in the U.S., nearly 50% of household food dollars are spent eating out compared to 25% in 1995 (Sonntag 2008). Of the 50% of food dollars, “both the depth and breadth of spending is greater for restaurants than grocery stores” (Sonntag 2008:22). “Almost a million restaurants in the United States generate more than \$500 billion annually, employ 13 million people and provide 70 billion meals a year” according to the National Restaurant Association (Roth 2008).

A survey of U.S. chefs by the National Restaurant Association concluded that the two hottest trends in the restaurant business are locally grown produce and organic produce (Rosenwald 2008). A growing number of restaurants are promoting transparency and shifting toward more socially responsible supply chains due to consumer pressure, debates around the global food system, the lack of regulatory oversight, and health and nutrition (O’Leary 2008, Webster 2008). “The overarching trend for 2008 is consciousness” (Webster 2008:1). More restaurants are going “green” because “people want to know where their food comes from, what you are doing about being responsible to the environment and how you are minimizing the negative impact you’re having on the community” (Webster 2008:1). Some restaurants hope to save money and use local food sourcing as a trendy marketing tool, while others truly believe in the benefits of local food systems and appreciate the freshness and taste of local food (Fabricant 2008).

The literature, however, questions whether local food systems, and specifically restaurant farm partnerships, are able to fundamentally transform the predominant agricultural system and whether local food systems are limited in transformative range (Wright &

Middendorf 2008 & Black 2008). Limits in transformative range speaks to the inherent challenges in sourcing high volumes of local food for chain restaurants compared to sourcing less significant volumes of local food for small-scale restaurants.

Local food systems are doubted for their ability to fundamentally transform the current global food system because they “represent rather fragmented atomized expressions of symbolic consumption” (Wright & Middendorf 2008:6). Local food systems are often minimal in scale because they are embraced by motivated environmental and socially conscious individuals rather than the larger public.

Yet, selling directly to the public via direct marketing by small farmers is considered an effective means of engaging the larger community in local food systems. “The supportive relationship between farms and the community helps to create an on-going learning relationship which increases consumers’ awareness about the implications of producing food that meets certain criteria (e.g. seasonality, choices in management practices, cost or production) and increases farmers awareness about consumers’ preferences; that is, the relationship enables purposeful feedback and adaptation” (King 2008:1). Community supported agriculture programs (CSA), restaurant farm partnerships, and farmers markets have “demonstrated impressive potential to re-embed markets in localities by directly reconnecting producers and consumers” as do, (Wright & Middendorf 2008:9). CSA programs are communities of individuals that pledge to support a farm operation for a given period of time, most often via a system of weekly purchases from the farm.

The literature also questions local food system's limited transformative range. The size of a restaurant operation is either an opportunity or barrier for sourcing local food based on the quantities local farms are able to supply. Many exclusive restaurants and farmers markets have success in direct marketing, whereas fast food chains face greater challenges in the volume of food products they need and the ability for small local farmers to produce a consistent volume (Black 2008). There are "enormous hurdles that face national chains hoping to embrace the eat-local trend" (Black 2008:1). Fast food chains dominate food scenes and are not likely to lose their power or influence, therefore their lack of involvement limits the possibilities for the sustainable development of local food systems (Wright & Middendorf 2008).

Recent efforts, however, on behalf of several fast food chains, including Burgerville and Chipotle, challenge these arguments and provide pragmatic examples of the transformative range of local food systems (Burgerville 2008). This research addresses one fast food restaurant in the Portland area, Burgerville, and two chain restaurants Hot Lips Pizza, and Grand Central Bakery as well as many small-scale restaurants in order to address the transformative range of Portland's local food system.

2.3 Food miles

Local food systems and direct marketing by restaurants and farms are often defined in terms of distance food travels and more specifically, food miles. “Food miles represent the distance food travels from where it is produced to where it is consumed” (Pfeiffer 2006:24). Defining local food in terms of distance, specifically food miles, is a means to empower the carbon-conscious consumer, such as locavores, who are individuals that insist on only consuming local food and rejecting food that has been transported over long distances.

The concept of food miles is under scrutiny; the literature questions whether it is oversimplified and may be unhelpful because “it doesn’t inform about anything except the distance traveled” and ignores the complexity of the food supply chain (Mckie 2008:2). The mode of transportation must be taken into account; carbon emissions from transportation are contingent on whether food is transported by road, sea, or air, as well as how often. Carbon footprint analysis attempts to expand on the concept of food miles but there are many environmental, economic, and social factors inherent in the complexity of the food supply chain that are not accounted for in either food miles or carbon footprints.

Studies have shown that some air-freighted food is likely greener than food produced locally. For example, green beans from Kenya are grown organically and with low-tech irrigations systems compared to beans grown in Britain. Although the Kenyan beans must be air-transported to the UK, less carbon dioxide is emitted in their entire life cycle compared to conventionally grown British beans (Mckie 2008). New Zealand sheep are

grass fed and farmers use less synthetic fertilizer than British farmers that grain-feed their livestock; “as a result, importing New Zealand mutton and dairy products actually cut energy use and climate impacts by 75% and 50%, respectively, over locally produced items” (Roberts 2008:2).

These figures are due partly to the fact that “carbon emissions from transportation are only a small part – around 10% - of the total emissions related to food; the lion’s share comes from the use of fertilizers in conventional agriculture” (Sonntag 2008: 88).

“Sometimes the most environmentally friendly food is grown faraway, under natural conditions more favorable to growing the food, and transport by sea is so efficient, in fossil fuel terms, that buying food from distant countries can contribute less to global warming than buying locally” (Singer and Mason 2006:150). In addition to how food is grown and how far it has to travel, storage and preparation are contributing factors to carbon emissions. For example, the amount of energy used to chill store apples, harvested in September and October in Britain, for up to ten months “overtakes the carbon cost of shipping them from New Zealand (Mckie 2008:3).

Arguing that local food systems support environmental, economic, and social sustainability based on the concept of food miles ignores the complexity of the food supply chain. “It is not that the concept of food miles is wrong; it is just too simplistic” (Mckie 2008:2). How food is grown, transported, stored, and prepared must be considered in addition to the economic and social implications of a given food system. There is a need for a better-informed food miles debate that acknowledges the complexity

of local and international food supply chains that may deepen and strengthen sustainable food systems and local food sheds.

Carbon footprints expand on the concept of food miles to include the entire food supply chain; carbon footprints may be used to “calculate the carbon and broader environmental footprint from each stage of the supply chain” for a given food (anon 2008c). Software to calculate carbon footprints is available online from companies such as TerraPass, NativeEnergy, Cargonfund.org and Carboncounter.org.

Carbon footprints take into account how food is grown, transported, stored, and served. It may also take into account the footprint of running a restaurant, an additional complexity in the restaurant farm food supply chain. How a restaurant is built, whether it recycles, composts, conserves water, disposes of grease responsibly, uses environmentally friendly takeout containers and energy efficient light bulbs, and buys nontoxic cleaning products all contribute to its carbon footprint. Lifecycle analysis is another means of addressing the entire supply chain of a food product. Lifecycle analysis quantifies the energy and materials used and amount of waste produced at every stage of the product’s life.

Replacing food miles with a carbon footprint figure or lifecycle analysis, however, does not address all the complexities of local food and food supply chains (Mckie 2008). For example, “estimating how long a product will be kept in a store and how efficient is its refrigeration is not easy to assess” and estimating the carbon emissions from processing

and cooking food products is difficult, if not impossible (Mckie 2008:4). It is argued that targeting what kind of food, versus the source of the food, is the best means to cut carbon emissions; food products such as meat, milk, and cheese come from ruminants that produce a significant amount of harmful methane and should therefore be reduced or eliminated from people's diet (Mckie 2008).

Determining the carbon footprint of regional transportation for local food systems is challenging because it consists of numerous individually owned vehicles and miles traveled may change daily or weekly. The number of vehicles and the number of miles traveled increases a local food systems carbon footprint to a degree often considered not sustainable. A food hub is one opportunity to support and improve the transportation methods for local food systems. A food hub closely mimics a farmers market but is restricted for restaurant purchases only. Such a food hub may minimize transport miles. Other means of minimizing negative environmental and social impacts inherent in the current delivery system include driving vehicles with better mileage, using alternative fuels, and/or creating informal transportation networks for collectively transporting food products.

The debates deepen to include social and economic implications of our food systems. Reducing food miles, carbon footprints, and tackling climate change is as vital as ensuring "that poor people who are already hit hardest by climate change are not made to suffer even further" (anon 2008d:2). Support for small-scale farms both in developing

and developed countries, local economic stability, nutrition, cost of locally produced food, and a locality's resources are additional social and economic complexities.

The livelihoods of farmers in developing countries who rely on exporting food to the developed world need to be considered. Singer and Mason feel “we have an obligation to support some of the world's poorest farmers, and under fair trading conditions, the best way to support them can be to buy the food they produce” (2006:150). Yet, experts argue that “re-localizing the food system in the U.S. will help to protect local food economies in developing countries from being converted to commodity export economies” (Sonntag 2008:93).

Local food sheds in developed and developing countries tend to support struggling small scale farms that otherwise must compete with large national and multinational players (Roberts 2008:2). It is contended that “supporting endangered family farms is a good reason for buying local if we are unable to buy from other, equally endangered family farms elsewhere” (Singer & Mason 2006:150).

“Locally directed spending by consumers more than doubles the number of dollars circulating among businesses in the community” (Sonntag 2008:v). Farmers are able to keep the majority of dollars the buyers spend on their food, rather than the roughly 20% or less that they otherwise receive (Singer & Mason 2006). This helps preserve family farms and stimulate the economies of rural communities.

Sustainable Seattle recently completed a local multiplier study that measured the amount of money spent locally that is re-spent locally. The study shows that locally directed spending for food helps increase the total amount of money in the local economy, develop strong local economic linkages, and provides for economic stability (Sonntag 2008). “The research indicates that more and stronger linkages [in a community] provides for a healthier, more diverse and resilient local economy” (Sonntag 2008:v). This research challenges perceptions on what makes for healthy economies, “from growth based on commoditizing resources to community stewardship or resource flows” (Sonntag 2008:82). “Improving the economic welfare of farmers, farm workers, small producers and shopkeepers benefits entire local economies, providing in turn deep social benefits to communities as a whole” (Norberg-Hodge 2000:31).

Another study completed by the New Economic Foundation and Northumberland County Council in 2005 also used a local multiplier methodology to track the value and impact of local spending in Northumberland, UK. The study found that “every £1 spent with a local supplier is worth £1.76 to the local economy” so that £1 spent locally is worth almost 400 per cent more in the local economy (New Economic Foundation 2005:1). Furthermore, Northumberland concluded that “developing stronger links with local suppliers also strengthened community spirit – the ‘social glue’ that holds communities together and plays an essential role in regeneration” due in part to quantity and quality of suppliers and the community links developed (New Economic Foundation 2005:1).

Research concludes that people more closely connected with the food they eat gain a greater sense of place, awareness, and respect for the environment and are more apt to embrace a sustainable lifestyle. Community participation in agricultural practices strengthens connections among community members and the earth (Norberg-Hodge 2001). “Getting to know the farmers who grow your food builds relationships based on understanding and trust, the foundation of strong communities” (Singer and Mason 2006:142).

Furthermore, “local foods often taste better and are more nutritious” (Roberts 2008:2). The nutritional quality and flavor of produce deteriorates over time when transported long distances (Pollan 2008). It is also argued, however, that “local food is not necessarily healthier than other food: local food is not always organically produced and pesticide use may be less subject to checks when food is grown by small local farmers than by a corporate giant” (Singer & Mason 2006:140). It is challenging to choose the healthiest and most environmentally and socially conscious food.

The literature suggests that cost is a barrier in sourcing locally produced food. Yet, more often, it is noted that higher costs are accepted because restaurants and individuals value quality food that is healthier, tastier, and is linked to a culture and place. “Even the perception that buying locally produced food costs more is being challenged as both businesses and their customers come to understand the benefits of community building and caring for the community’s resources” (Sonntag 2008:vi). Many restaurants are forsaking immediate profitability by making long term commitments to the environment

and community; “it’s about building relationships and knowing we’ll have a better product over the long run” (Black 2008:4).

The successes of local food systems are contingent on a locality’s resources. How many people can be fed locally and whether it is possible for a community to be self-sufficient is determined by the number of farms and volume and diversity of food produced, community support, and sustainable pioneers. “Countries like the United States, blessed with superb soils and climate, can indeed feed themselves “locally.” But countries like China and India, whose soaring populations have already exceeded their food output, will need imports for the foreseeable future- in the coming decades, we will probably need *more* global trade, not less” (Roberts 2008:2). “Local foods tend to differ from place to place, in direct relation to differences in climate, geography and natural resources. Similarly, local food production involves a wide range of cultivation methods, as each locale’s unique ecological and cultural conditions are allowed to determine appropriate farming practices” (Norberg-Hodge *et al* 2000:17). FeedAbility studies are a recent means of determining whether an area is capable of feeding all the people that live there; one such study is currently being conducted in northwest New Jersey by the organization FoodRoutes (FoodRoutes 2003). FeedAbility studies and local assessment guides available online consist of a list of questions to help communities interested in stimulating a local food shed better understand their available resources and opportunities and challenges in their given locality.

Local food systems and food supply chains are complex in nature. An evaluation of a local food system must address food supply chains, including the production, storage, and transportation of food, support of farmers' livelihoods, local economy, nutritional value of food, and a locality's resources. Conscious consumers have tough decisions to make when selecting food products contingent on the environmental, social, and economic factors of food production and distribution.

2.4 Findings from past assessments of local food systems

Numerous studies have been completed to identify motivations, challenges, and successes of local food systems. The challenges and successes presented in these studies provide understanding and opportunities to increase regional food supply and demand.

The study "One Planet Dining: London's growing market for eating out sustainably" attempts to provide a current picture of London's food service sector and the potential for greater use of sustainable food and greater adoption of sustainable business practices (Dalmeny 2007). Interviews were conducted with two sectors of the food supply chain: restaurants and customers. The study noted that the restaurant and catering sectors "provide an excellent opportunity to improve the sustainability of London's food system, both because of the volume of food they deal in and their strong relationships with customers" (Dalmeny 2007:5).

The London study's key findings include the lack of communication and education about sustainable issues between restaurants and their customers. This is viewed as a missed opportunity in the London restaurant sector. Major challenges for restaurants working with small scale local suppliers rested in the logistics, scale, and reliability of supply and contract management. Several suggestions for greater collaborative action on behalf of local authorities and among suppliers are presented in the report, with an emphasis on local food hubs. Lastly, restaurants that source a significant amount of their food locally tend to have unique and diverse menus as well as a sense of staff pride and devotion (Dalmeny 2007).

Another study of interest, completed in Portland, Oregon, identifies barriers and opportunities to the use of regional and sustainable food products by local institutions (Pierson nd). Ecotrust, a nonprofit organization in Portland, hosted this study to support their mission to "improve economic, environmental, and human health in rural and urban communities throughout the development of sustainable food systems" (Pierson nd:7). Interviews were conducted in four sectors of the food supply chain: purchasers, growers, processors, and distributors.

The Ecotrust study's key findings include an overall interest by interviewees to increase institutional use of regional food products. A major barrier is the lack of information about sustainability issues. Price for local food products is considered both an opportunity and a barrier; perspectives on whether regional food is more or less expensive were split among interviewees. Opportunities for local institutions to increase

their buying of regional foods include building demand for regional and sustainable foods, connections with producers and distributors, and contracts, bidding specifications and prime vendor agreements. Future goals are to promote, increase, and facilitate institutional purchases of regional and sustainable food products.

Unlike the London study, farmers were interviewed in this study. Of the six farmers interviewed two farmers are conventional growers and four are Food Alliance-certified growers. Questions about the sustainable practices of their operations were not asked, aside from any certifications. Purchasers and growers alike cited challenges in reference to logistics of delivery, including volume of food products and working with distribution companies, as well as initiating partnerships and increasing demand for regional food.

In the study “Why Local Linkages Matter: Findings from the Local Food Economy Study,” Sonntag (2008) analyzes the economics of a region’s emerging local food system and describes the dollar flows and economic linkages of food-related businesses in Seattle. Interviews were conducted with stakeholders involved in the food system, a survey was distributed, and workshops were held. An economic impact analysis was also completed.

Sonntag argues that the foundation of a sustainable food system is the web of relationships that support it and that local spending not only positively contributes to the local economy, but builds stronger healthier communities. The findings from this study conclude that “two major constraints to the future growth of the local food economy

stand out: the dwindling supply of farmland and the need for local distribution capacity” (Sonntag 2008:viii). Restaurants cited the lack of distribution means as their greatest challenge in sourcing food locally (Sonntag 2008).

“Food for Thought: Motivations to Adopt Sustainability Practices and Perceived Outcomes,” a study completed by three University professors from Portland State University, Kennesaw State University, and University of Nevada, questions the motivations for the adoption of sustainability practices in a food supply chain (Pullman, Maloni, & Carter nd). Interviews and surveys were completed with food and beverage producers in the Pacific Northwest. The complexity of the sustainability view and food supply chain was addressed.

The “Food for Thought” study concludes that there are many potential motivations for adoption of sustainability practices along the food supply chain; however, the two most important drivers are individual motivation to improve environmental and quality performance and the motivation to be an innovator (Pullman, Maloni, & Carter nd). A consistent linkage is witnessed between the motivation to improve environmental performance and product quality, implementation of environmental practices, and the resulting environmental and quality performance outcomes. Market drivers, such as image improvement, were not significantly related to the adoption of environmental practices.

The above studies address local food systems, the roles of different sectors in the food supply chain, motivations, barriers and opportunities for local food systems, and the complexity of local food systems and food supply chains. All of the studies concluded that supporting local food systems positively contributes to the environmental, economic, and social sustainability of a community; however, there are many challenges in the adoption of sustainable food supply chains.

The lessons learned from these studies will be used to help identify challenges and opportunities in Portland's restaurant farm partnerships. Several of these studies cited a lack on information, communication, and education as a missed opportunity. Delivery logistics for small scale suppliers was considered as a challenges and the need for local distribution capacity an opportunity. A linkage was identified between motivation to adopt local food systems and motivation to be an innovator and improve environmental quality performance. Specifically, this research will build upon past studies by completing more in-depth interviews with regional food suppliers and buyers in Portland and by interviewing the farming sector to gain a greater understanding of the sustainability and complexity of the entire supply chain. The challenges and opportunities identified in these studies are consistent with several of the challenges and opportunities identified in this research for Portland's restaurant farm partnerships and will be further discussed in the discussion section of this paper.

3. Methods

The research for this paper is based on interviews conducted in the restaurant and farming sectors in the Portland area between June and September 2008 (see appendix A and B for interview questions). This research is based on case studies and narratives and therefore is considered exploratory and qualitative in nature. All restaurant interviews and two farm interviews were completed in person, the rest of the farm interviews were completed over the telephone due to distance and schedule constraints.

Nine individuals were interviewed from the restaurant sector. In total, twenty five restaurants are represented by these individuals. The restaurants include two food carts: Garden State and Al Forno Ferruzza, three higher-end restaurants: Higgins, Fife, and Three Square Grill, one corporate owned restaurant: Red Star Tavern, and three chain restaurants with multiple locations in Portland: Grand Central Bakery, Hot Lips Pizza, and Burgerville. The restaurants were chosen for their diversity in operation size, location, and type of cuisine. Some restaurants chosen attract wealthy clientele, while others do not.

All restaurants and individuals interviewed are identified as sustainable pioneers in Portland with a personal commitment to environmental and social values. They are understood to have achieved some level of success in sourcing food locally and supporting a sustainable food supply chain. Some restaurants only source a small

percentage of food locally while others progressively pursue sustainability throughout their entire food supply chain.

Five individuals were interviewed from the farming sector, including one individual from a cooperative of 32 farms under the name of Shepard's Grain. In total, these 36 farms supply food to more than twenty restaurants in the Portland area. The farms interviewed are small-medium scale agricultural farms that vary in size and food products grown:

Dancing Roots Farm (5 acres, 2.02 hectares), Your Kitchen Garden (11 acres, 4.45 hectares), Springwater Farm (40 acres, 16.19 hectares), Winters Farm (140 acres, 56.66 hectares) and Shepard's Grain Farm, a cooperative of 32 farms (total 10,000 acres, 4046.86 hectares). The farms were chosen for their diversity in size, location, and food products grown.

The farms interviewed for this research were chosen after restaurant interviews were completed. During the restaurant interviews, interviewees were asked who they source food from locally and what farms they recommend I interview.

This research also includes a study of eleven additional farms located in the Portland area involved in the restaurant farm partnership in Portland. These farms were unavailable for interviews and therefore research was completed using the "Guide to Local and Seasonal Products" (Ecotrust Food and Farms Program 2007), a local resource for restaurants and farms involved in purchasing and sourcing locally grown food. The guide acts as a directory for restaurants and farmers and includes contact information, order

requirements, restaurant/farm descriptions, and farm agricultural practices. The guide was used for this research to learn the agricultural practices of these additional farms that source food locally to restaurants in order to better inform discussion about the food supply chain in Portland.

The eleven additional farms are Deep Roots Farm (95 acres, 38.45 hectares), Viridian Farms (100 acres, 40.47 hectares), Dante's Garden Pesto LLC (1 acre, .4 hectares), Gales Meadow Farm (3 acres, 1.21 hectares), Ayers Creek Farm (100 acres, 40.47 hectares), Hood River Organics, Inc. (5 acres, 2.02 hectares), Riverwood Orchard and Farm (36 acres, 14.57 hectares), Creative Growers (15 acres, 6.07 hectares), Gathering Together Farm (50+ acres, 20.23+ hectares), Sauvie Island Organics (10 acres, 4.05 hectares), and Gaining Ground Farm (6 acres, 2.43 hectares). Again, these farms were chosen for their diversity in size, location, and food products grown as well as their inclusion in the "Guide to Local and Seasonal Products."

Once all interviews were completed, the data was compiled to provide an understanding of restaurant farm partnerships and their motivation and ability to adopt and practice sourcing locally grown food. This data is used as a basis to discuss the restaurant farm partnerships in Portland and their successes and failures in creating a sustainable food supply chain.

A local food system for this research is defined in terms of Portland's food shed; a food shed "is the region and resource flows that produce the food for a particular population" (Hemenway 2006:1).

3.1 Limitations

The sample size for this research is a limitation to this study. This research only provides a snapshot of businesses and individuals in Portland supporting a local food movement to varying degrees and therefore, this research may not be generalized to the larger restaurant and farming sectors in Portland. The individuals interviewed do not represent the range of approaches, experiences, and attitudes toward local food in Portland's restaurant and farming sectors. Rather, this research exemplifies individuals in Portland identified as sustainable pioneers working to support a local food movement, increase the quality of food in Portland, and improve the sustainability of Portland's food chains.

This research was conducted between June and September 2008 and therefore only provides a snapshot of practices by restaurants and farms during the four month period. Efforts were made, however, to understand the practices of restaurants and farms throughout the year via questions in the questionnaire pertaining to the changing of seasons and season extension.

4. Interview Findings – Restaurants

4.1 General characteristics of restaurants interviewed

Nine individuals were interviewed from the restaurant sector. In total, twenty five restaurants are represented by these individuals. The restaurants include two food carts: Garden State and Al Forno Ferruzza, three higher-end restaurants: Higgins, Fife, and Three Square Grill, one corporate owned restaurant: Red Star Tavern, and three chain restaurants with multiple locations in Portland: Grand Central Bakery, Hot Lips Pizza, and Burgerville. The greatest diversity among these restaurants is witnessed in their size, number of food suppliers, and type of clientele. These factors impact the opportunities and barriers they face in sourcing food locally.

The restaurants interviewed purchase local food to varying degrees. All the individuals interviewed commented on their personal commitment to environmental and social values and therefore may be considered as sustainable pioneers in Portland. Some restaurants are also working to improve the sustainability of their food supply chains.

4.2 Current purchasing behaviors

All twenty five restaurants purchase local food. Determining the percent of total food served that is sourced locally is complex. Seasonal menu changes and comparisons in the volume of specific local food products served versus the number of ingredients in any given item on a menu make it difficult to determine a percentage. Some of the restaurants, however, estimated the percent of all food served that is sourced locally and the average range is 40% to 90%.

The number of food suppliers from which each restaurant sources food from ranges from one to as many as twenty farms throughout the year. Al Forno Ferruzza and Red Star Tavern only source food from on local farm, whereas Hot Lips Pizza and Higgins source food from over twenty farms. The number of suppliers for any given restaurant is based on size of operation, volume of food products delivered by each supplier, and ambition to source food locally.

4.3 Motivation to purchase local food products

Personal relationships with farms and quality of food products are the most important purchasing factors among the individuals interviewed. Other common factors included freshness, nutritional value and taste of food products, support of the local economy and ability to influence positive environmental, social, and political change. Factors mentioned by only one or two restaurants include knowledge of where their food comes

from, carbon footprint, food safety, appearance of food products, animal care, customer reception, convenience and availability.

Restaurants value the personal relationships they have with their food suppliers because it allows them the flexibility to request certain food products as early as when farmers are ordering seeds. Restaurants are able to make weekly/bi-weekly orders and set standards for quality and freshness. Most individuals also appreciate knowing where their food comes from, how it is grown, and the dedication, commitment, and pride of the farmers.

Many restaurants mentioned their personal values or the value statements of their restaurant as their motivation to purchase local food. Overwhelmingly, the individuals interviewed demonstrate a personal commitment to social and environmental values, as well as a loyal dedication to serve the highest quality food. Burgerville is committed to source food from suppliers with shared values of “fresh, local, sustainable” practices (Burgerville 2008). Fife is committed to “quality, farm fresh food that supports Oregon’s sustainable agriculture” (Fife 2008).

When asked whether the cost of local food products are competitive with non-local food products, most individuals interviewed believe the quality of local food products create a competitive advantage against non-local food products. The value of personal relationships and long-term relationships is also valued more than cost among most interviewees.

Marco Shaw from Fife restaurant is entirely unaware of prices for non-local food products and is not interested in comparing costs. He is motivated to source food locally based on his own personal philosophies. Cost is a determining factor, however, for some restaurants including Red Star Tavern, a significantly larger restaurant than Fife, for volume items such as carrots, onions, and celery. Higgins noted that the prices on their menu reflect the higher prices of locally sourced food.

4.4 Challenges and opportunities to purchasing local food products

Seasonality is both a barrier and an opportunity for restaurants to purchase local food products. Seasons influence how much local food is available, who restaurants source food from, and how often their menu changes. Twenty two restaurants claimed that some of their local food suppliers change seasonally. Some restaurants, like Garden State, purchase local food at farmers markets, which are closed during January and February. Garden State closes during these months as well. All other restaurants interviewed remain open during winter months, however, many cited these months as difficult times to source local food.

A common solution to the decline in local food products available during winter months is practicing season extension. All restaurants interviewed, aside from Garden State and Burgerville, practice season extension to different degrees, including curing of meats,

freezing, pickling, and making jam and pesto. A common barrier to practicing season extension is limited storage space, as is the case with food carts like Garden State.

Six restaurants menu's change daily, one restaurant changes 1/3 of its menu weekly, and 18 restaurant menu's change seasonally, some with daily changing specials. These changes are motivated by what food products are available, food deliveries, and chef creativity.

There are many food products that are not grown locally that individuals interviewed stated they have to source elsewhere. The most common is olive oil, others are olives, garlic, some meat products including calves liver, and fruits including citrus, pineapples, and lemons. These food items are not grown in Portland's food shed.

The size of the restaurant is also a barrier and opportunity to source food locally. Fife is a small sized restaurant that is open for five meals a week. Fife changes its menu daily and estimates that it sources 96% of its food locally from small producers. Burgerville, a medium sized chain restaurant company with nine locations in Portland, is open on average fifteen hours a day and has a consistent menu at each location with some seasonal changes. Burgerville's demand is not met by small local producers and it faces challenges finding enough consistent local food products. The difference in size of Fife and Burgerville impacts how food is transported to their restaurants, how many producers they source food from, and their ability to be flexible.

Some restaurants feel the number of suppliers, their reliability, and the logistics of transportation and delivery are challenges in sourcing food locally. All interviewees are willing to be flexible and understand farmers' schedules, to a degree. If the challenges become too significant the restaurants stop working with the farms. Restaurants that only source food from one or two suppliers do not feel these are challenges.

4.5 The supply chain

All individuals interviewed had visited at least one farm they sourced food from locally and learned about the farm's agricultural practices. Hot Lips Pizza offers farm visits to all its employees.

All individuals interviewed are consistent in preferring local food; most individuals are adamant about sourcing food from farms that practice sustainable agriculture but do not require a farm to be organically certified. It is more important to the interviewees to know the reputation and agricultural practices of a farm than any organic or other certification. Some individuals do, however, feel that organic certification is an additional benefit.

Restaurants interviewed receive deliveries from farms via truck or van on average twice a week, except for Burgerville, who uses distribution companies to transport their food

products to all nine locations in Portland two to four times a week. Restaurants that source food from farmers markets visit the markets on average two to three times a week.

Twenty three of the twenty five restaurants recycle and compost, twenty two use non-toxic cleaning products, and seven use biodegradable takeout containers. Three restaurants had green building design characteristics: Fife is a LEED certified building, Hot Lips Pizza has recycled wood plank floors in one of its locations and a heat exchanger that saves electricity at another location, and one of Burgerville's locations has countertops made from recycled used bleach containers.

Some other unique sustainable food supply chain characteristics are the use of bikes for pizza delivery by Hot Lips Pizza, Red Star Tavern's use of recycled glass plates, and Al Forno Furruzo's use of a wood fired oven and propane stove for cooking.

4.6 Customer education

All restaurants offer some education to their customers, typically on their menu or websites, about their partnerships with local farms and the food they source locally. Many restaurants, including Fife, Higgins, Red Star Tavern, and Grand Central Bakery, do not list the farms they source food from, but rather incorporate their commitment to sourcing local food in their philosophy and restaurant description. Others, including Al Forno Ferruzza, Three Square Grill, Hot Lips Pizza, and Burgerville, list the farms they

source food from locally on their menu or website. All restaurants also make an effort to educate their entire staff on where their food products come from and the agricultural practices of the farms. Staff to consumer education is encouraged at all restaurants.

Limited education is offered about sustainable food chains, local food movements, or health and nutrition at the restaurants. Sustainability is discussed on Hot Lips Pizza's website and nutritional information is available for menu items on Burgerville's website.

Several of the restaurants are also featured in local magazines, including *Edible Portland* and *Oregon Tilth*. In the Spring 2008 edition of *Edible Portland*, there is an article on Fife restaurant and its short supply chain, also featuring Fife's main local food supplier Dancing Roots Farm. Grand Central Bakery prints their own newsletter nearly every season and in most copies includes an article about one of their local food producers.

4.7 Future interests in purchasing local food products

All restaurants interviewed want to increase the amount of food they source locally, specifically by having access to a greater diversity and variety of food products available in Portland. Seventeen restaurants have future interest in increasing the number of suppliers they source food from locally. Of these restaurants, their reasons include wanting to increase the percentage of food they serve that is sourced locally and being willing to work with a new farmer they discover if they have an interesting, needed, or

high quality food product. Eight restaurants prefer to decrease the number of suppliers they work with but increase the amount they purchase from each supplier in order to decrease the challenges associated with multiple suppliers in terms of logistics, reliability, and paper work.

Future interests in a food hub in Portland, which closely mimics a farmers market but is for restaurant purchases only, are mixed. The restaurants not interested included Al Forno Ferruzza and Red Start Tavern because they only source food from one or two farms. All three chain restaurants are also not interested; Grand Central Bakery and Hot Lips Pizza have main prep kitchens that act like a food hub for all their restaurants and Burgerville uses distribution companies and purchases food on a scale far greater than a food hub could support. Three restaurants were possibly interested; Higgins and Three Square Grille feel a food hub may be helpful for small farmers and Garden State already goes to farmers markets to purchase local food. All restaurants felt a “virtual” online terminal to purchase food would break down the personal relationships they value in their restaurant farm partnerships.

4.8 Other issues

Higgins, Three Square Grill, and Hot Lips Pizza are all members of the Portland Chefs Collaborative (CC). The Portland CC, a local chapter for the national CC, is an organization that helps connect farmers and chefs, encourages the use of local foods, and

fosters a sustainable food supply among restaurants and local farmers. Of the restaurants not involved in the CC, most feel it is a significant time commitment and it is only helpful in the beginning when you are first establishing partnerships with local farms.

The Farmer Chef Connection, an annual conference for restaurants and farmers, was attended this year by five of the individuals interviewed. Nearly all individuals attended the Farmer Chef Connection in previous years, and all individuals felt it was helpful in the beginning when they were first establishing partnerships with local farms.

Of the nine individuals interviewed, four reported that they initiated their restaurant farm relationships, two reported that farms initiated the relationships, and three reported that it was a joint effort.

5. Interview Findings – Farms

5.1 General characteristics of farms interviewed

Five individuals were interviewed from the farming sector, including one individual from a cooperative of 32 farms under the name of Shepard's Grain. In total, these 36 farms supply food to more than twenty restaurants in the Portland area. A variety and diversity

of vegetables, fruits, nuts, herbs, flour, mushrooms, and pigs are grown and raised on these farms.

The farms interviewed were Dancing Roots Farm (5 acres, 2.02 hectares) located in Troutdale, Oregon, Your Kitchen Garden (11 acres, 4.45 hectares) in Canby, Oregon, Springwater Farm (40 acres, 16.19 hectares) in St. Helens, Oregon, Winters Farm (140 acres, 56.66 hectares) in Troutdale, Oregon, and Shepard's Grain Farm in Harrington, Washington, a cooperative of 32 farms (total 10,000 acres, 4046.86 hectares).

An additional eleven farm's agricultural practices were researched from the "Guide to Local and Seasonal Products" (Ecotrust Food and Farms Program 2007) in order to better inform discussion about the food supply chain in Portland. The farms researched are Deep Roots Farm (95 acres, 38.45 hectares), Viridian Farms (100 acres, 40.47 hectares), Dante's Garden Pesto LLC (1 acre, .4 hectares), Gales Meadow Farm (3 acres, 1.21 hectares), Ayers Creek Farm (100 acres, 40.47 hectares), Hood River Organics, Inc. (5 acres, 2.02 hectares), Riverwood Orchard and Farm (36 acres, 14.57 hectares), Creative Growers (15 acres, 6.07 hectares), Gathering Together Farm (50+ acres, 20.23+ hectares), Sauvie Island Organics (10 acres, 4.05 hectares), and Gaining Ground Farm (6 acres, 2.43 hectares).

5.2 Current food supply behaviors

Four of the farms interviewed sell food products directly to restaurants by personal deliveries or at farmers markets. Shepard's Grain Farm sells to a distributor due to distance and volume of flour produced. The distributor supplies food to restaurants in Portland.

Your Kitchen Garden sells 100% of their food products directly to restaurants by personal deliveries. Dancing Roots, in addition to selling directly to restaurants, also sells food products via their CSA program. Springwater Farm sells mostly at farmers markets and makes some deliveries to restaurants. Winters Farm sells at farmers markets, fruit stands, wholesalers, and makes occasional deliveries to restaurants.

All farms source food locally year round and three farms practice season extension in an effort to increase available food products during the winter months. Season extension allows crops to be cultivated out of their normal outdoor growing season, often by using greenhouses. Your Kitchen Garden has three unheated greenhouses, Dancing Roots Farm has two unheated greenhouses, and Winters Farm uses plastic over raised beds.

Both Your Kitchen Garden and Dancing Roots Farm work with chefs at partner restaurants to pick out seeds for their farm; they decide together what products and varieties to grow throughout the year.

5.3 Factors influencing food sourcing decisions

Among the individuals interviewed, the most common motivation to sell food locally to restaurants is personal relationships with customers. Other common factors include convenience, personal commitment to environmental and food safety, and protection and support of small farms. Shepard's Grain Farm also mentioned the preservation of identity as a motivating factor; identity and knowledge of where food comes from gets lost in long food chains.

The individuals interviewed demonstrate a personal commitment to sustainable agricultural practices and support of a more sustainable food supply chain. All individuals are motivated and dedicated to produce the highest quality food products that are diverse, fresh, and taste superior without harming the environment.

5.4 Challenges and opportunities to selling local food products

Several challenges in selling food locally were mentioned by the individuals interviewed. Most commonly, farmers are frustrated by restaurants that are inconsistent and demanding. Farmers must grow a large diversity of food products on small patches of land to satisfy the restaurants needs.

Restaurants and farmers also have very different schedules. The delivery route is often complex and it is challenging to determine the best route. Farmers interviewed prefer to sell larger quantities to few restaurants located close together.

Additionally, competition is increasing in the direct market for restaurants and farms. Farms are witnessing a flooding of small farms joining the local food movement trend in the Portland area.

A challenge to season extension mentioned by Dancing Roots Farm, who has two unheated greenhouses, is the demand for chef's menus to reflect seasonality. Many chefs will not source food products grown outside of their typical season.

Opportunities in selling food products locally include creating personal relationships with chefs and restaurants, feeling pride in providing fresh, tasty, and nutritious food to the local community, delight in food products being appreciated, and reduction of food miles.

5.5 Agricultural practices and the food supply chain

All five farms interviewed practice sustainable agriculture but none are certified organic. Farmers are not interested in getting organic certification for many reasons including cost, not wanting to be associated with commercial organic products, and feeling

certification unnecessary because of direct relationship with buyers who are educated about their agricultural practices.

Overwhelmingly, all farms are GMO-Free, use organic fertilizers, practice integrated pest management, and refrain from using any synthetic agro-chemicals. Springwater Farm is a permaculture farm, Winters Farm received two awards from East Multnomah Soil and Water Conservation District for water conservation and soil health, and Shepard's Grain Farm is certified by Food Alliance and practices no tillage and direct seeding to improve soil quality and reduce soil erosion.

Four farms deliver their food products to local restaurants directly or through farmers markets; three farms made weekly deliveries and one farm made deliveries twice a week using a truck or van. Distance traveled ranges from twenty to thirty miles. Shepard's Grain Farm has a distributor that picks up product once a week.

Of the eleven additional farms researched, all farms practice sustainable agriculture and five are certified organic. Of the non-certified organic farms, five practice no spray, three are GMO free and three practice integrated pest management. Riverwood Orchard Farm is Food Alliance certified. Viridian Farms offsets its farm operation's carbon footprint by supporting wind energy projects, recycles, and preserves five acres of land as a natural reserve.

5.6 Farm education

All farmers interviewed believe farm visits to be the best means of educating buyers about their agricultural practices. Farmers invite their buyers to visit their farm and learn about their agricultural practices; at least one restaurant visited all farms in the past year. Many farmers also speak about their agricultural practices with customers, including restaurant chefs, at farmers markets.

It is believed by all farmers interviewed that sustainable agriculture practices are important to restaurants but that restaurants are not concerned with organic certification. Certification is not necessary because the restaurants are educated and understand the farms agricultural practices. Sheri Sirkin at Dancing Roots Farm feels that chefs are interested in her agricultural practices mostly in reference to quality, freshness, taste, and variety.

Farms also educate restaurants and the greater public by listing their contact details, food products, and agricultural practices in the “Guide to Local and Seasonal Products.” Four of the five farms interviewed are listed in this directory. Other local publications and newspapers, including *Edible Portland* and *Oregon Tilth*, profile local farms and educate readers on agricultural practices and where farms sell their food products. Grand Central Bakery also profiles local farmers in their newsletters.

5.7 Future interests in selling local food products

All individuals interviewed aim to continue to sell their food products locally to restaurants. Some want to increase the number of restaurants they supply to while others want to increase the volume of food they supply for fewer restaurants.

Springwater Farm intends to incorporate agro-tourism on their farm in the future. Both Your Kitchen Garden and Dancing Roots Farm hope that seed companies will improve the varieties and consistency of seeds available in the future.

5.8 Other issues

None of the individuals interviewed are member of the Chefs Collaborative but three attended the Farmer Chef Connection seminar this year. Of the individuals who knew about the Chefs Collaborative, it is viewed as too great a time commitment. The individuals who attended the Farmer Chef Connection feel it is a relevant and helpful event. The conference helped the farmers create new partnerships with restaurants, specifically the first conference they attended, and added excitement and pride to their relationships with other farms, restaurants, and organizations involved in supporting Portland's local food shed. Three individuals reported that restaurants initiated their restaurant farm relationships and two reported that they initiated the relationships.

6. Synthesis of key interview findings / Discussion

The case studies for this research provide a snapshot of a growing minority of Portland's restaurant and farm practices, motivations, and attitudes toward buying and selling local sustainable food and their food supply chains. The case studies and supply chains represent varying examples of adoption of sustainable practices suggesting that Portland's restaurant farm partnerships are making a small, yet significant effort to encourage innovative environmental and social practices, address the sustainability of urban and rural Portland, and deepen the food miles debate.

Further efforts need to be made by the restaurant farm partnerships in Portland to address the complexity and sustainability of the food supply chain, expand on restaurants sustainable practices, find more innovative transportation means, increase education, explore opportunities to grow unavailable food products, and deepen restaurant farm partnerships to encourage greater compassion and logistical coordination.

The farms and restaurants interviewed are motivated by their values and commitment to environmental and social issues. For this reason, these individuals are identified as sustainable pioneers. Their motivation, personal commitment, innovation, and creativity encourage the support of a sustainable food supply chain. The greater the individual's commitment and vision, the further they advance the sustainability agenda.

Sustainable food chains require cooperation across the entire supply chain. In order for the restaurant farm partnerships in Portland to be considered sustainable, every member of the chain must be sustainable. The scale and complexity of the food supply chain creates barriers and opportunities for adopting sustainable practices. The supply chains in the case studies for this research include the agricultural practices of the farm, transportation of food products, restaurant operation, and consumer education; a sustainable supply chain is viewed in relation to environmental, social, and economic factors across the supply chain.

The agricultural practices of the farms interviewed and researched in the Portland area are consistently sustainable. The farms reject high input modern agricultural methods, practice organic farming techniques, grow a variety and diversity of crops, and use some heirloom and heritage seeds. Most farms are small family-run farms with commitments to the environment, local community, personal relationships, and growing quality, fresh, and tasteful food.

Experts contend that the greatest carbon emissions witnessed in food supply chains are from the use of fertilizers in conventional agriculture. The sustainable agricultural practices of farms involved in Portland's restaurant farm partnerships reduce the pollution and carbon footprint of Portland's local food system.

All of the restaurants interviewed are educated about the agricultural practices of the farms from which they source food from and are dedicated to support environmentally

and socially conscious farms. Many restaurants visit the farms from which they source food from and encourage honest and accountable relationships with their partner farms.

Some restaurant's priorities, however, are to local farms and do not require the farms to practice sustainable agriculture. Burgerville, for example, sources food from several local conventional farms. It is debatable whether sourcing conventionally grown food locally is better than sourcing sustainably grown food non-locally. Factors such as size of operation and distance and means food travels impacts the overall sustainability of the food supply chain. To advance the sustainability agenda in Portland, restaurants need to consistently source both local and sustainable food products.

All of the farmers interviewed transport their food on average twice a week using a truck or van, except for Shepards Grain. Shepards Grain uses a distribution company like those that transport food to Burgerville. The carbon footprint of regional food transport is argued to be significant, and therefore not necessarily sustainable. Local distribution companies may have a smaller carbon footprint by coordinating pick-up and delivery among farms and restaurants in close proximity and reducing the number of trucks and vans transporting food. The transportation of food is complex; it is influenced by size of farm and volume of food product, number of buyers, and distance and logistics of deliveries.

Inherent sustainable characteristics of the current delivery methods for the restaurant farm partnership in Portland include limiting the use of packaging, use of recycled crates

and bins, facilitation of direct relationships with restaurant owners and farmers, education included in direct relationships, and transparency. Unsustainable characteristics include food miles traveled by vans and trucks, carbon footprint of all deliveries, and time demand on producers and buyers.

Few farms or restaurants interviewed are motivated to change their current delivery methods. Only three restaurants and no farms expressed an interest in a food hub for the restaurant farm partnership. Aside from Shepard's Grain, all farms feel they are too small an operation to use distribution companies. Furthermore, none of the farms interviewed collaborate with other farms for deliveries.

There is need for greater coordination of the food delivery system among farmers and restaurants in Portland. The current transportation and delivery system weakens the sustainable food supply chain and to varying degrees frustrates both parties involved in the partnership. "The paradox of our centralized industrialized food system, with its carefully scheduled deliveries and obsessive focus on cost-cutting, is that it actually helps keep food transportation energy costs down" (Roberts 2008:2).

Both restaurants and farms interviewed expressed their interest in reducing food miles as a motivation in sourcing food locally; local food delivery systems may be improved to further reduce food miles and encourage more coordinated efforts to minimize logistical challenges.

Restaurant operations are also a part of the food supply chain. Twenty three of the twenty five restaurants interviewed recycle and compost, twenty two use non-toxic cleaning products, and seven use biodegradable takeout containers. Three restaurants have green building design characteristics. Fife is the only restaurant in a Leadership in Energy and Environmental Design (LEED) certified building, a green building rating system with standards for environmentally sustainable construction.

The city of Portland, in partnership with the Portland Office of Sustainable Development, has a significant role in aiding restaurants to be more sustainable, mainly in their city wide recycling and composting programs. Some restaurants are also using their innovation and leadership to expand on their sustainable practices, including Hot Lips Pizza's introduction of a pizza bike delivery system. Overall, more sustainable practices can be applied to each restaurant; restaurants need to attend to sustainable issues in their building, energy use, cooking methods, and staff and customer education.

Customer education encourages a connection between consumers and the food they so that consumers gain a greater sense of place, awareness, and respect for the environment. Every member of the supply chain needs to be educated in order for that connection to be made, including operational workers, cooks, servers, and customers. In smaller operations, where food is being grown and transported by one individual to a given restaurant, it is easier to maintain a consistency in education. The larger the operation, the less likely the farm partnership story will travel to every individual handling the food.

Staff education and short statements on restaurant menus mentioning the use of locally sourced food is the predominant means of consumer education among the restaurants interviewed. Details about locally sourced food or sustainable practices are found on some restaurant's websites, where only the most inquisitive costumers may make the effort to visit and read about the restaurant. Some farms are hesitant for restaurant owners to put their name on their menu and most restaurants are more interested in customers recognizing the quality and taste of their food than recognizing where it comes from.

The lack of education may be considered a lost opportunity or impediment to the restaurant farm partnership in Portland. Every member of the supply chain needs to be educated, including consumers, for a truly sustainable food chain to be adopted. The lack of education may be the result of sustainable practices not linked to motivation and competitive advantage.

Poor communication and education for consumers means “that opportunities are often missed to generate a ‘virtuous circle’ encouraging growth in both demand and supply” (Dalmeny & Reynolds 2007:5). Increasing education may improve the image of Portland's sustainable regional food shed and encourage a greater demand for locally produced food and more involvement by restaurants and farms. Education may also encourage a change in eating habits among conscious and educated consumers outside of restaurants. Restaurants need to be encouraged to creatively communicate their sustainable practices to both their customers and their staff.

A comprehensive sustainable food system addresses environmental, economic, and social factors. Portland's restaurant farm partnerships speak to such factors, including pollution prevention, minimizing carbon emissions, land preservation, energy and waste reduction, buying local to support the local economy, recognizing the long term economic value of protecting the environment and supporting the local community, support of small farms and farmers livelihoods, hiring of local people, promoting nutritional and safe food, and promotion of local community events. These efforts impact suppliers, employees, customers, and the community. Many of these efforts, however, are not clearly communicated to every member of the food supply chain. Education on environmental, economic, and social impacts needs to be encouraged.

Issues of poverty and inequality are two prominent issues in any community that are paramount in discussions of sustainability. These issues are addressed by Portland's restaurant farm partnerships in terms of food distribution and job opportunities. The transformative range of Portland's local food system allows access to locally sourced food by varying clientele. Locally sourced food may be consumed at less expensive fast food chains and food carts and at higher end restaurants. This transformative range increases the scope and impact of Portland's local food system. More people are able to access nutritious, fresh, locally grown food and may be educated on where their food comes from and how it is grown. Furthermore, the hiring of local people at both farms and restaurants encourages stronger community networks, more money circulating in the local community, and greater education about local food systems.

Currently, most restaurants compost leftover food. There may be an opportunity to circulate leftover food to local shelters and food banks to feed the hungry. More creative educational efforts, such as local community events that target environmental, economic, and social issues, including poverty and inequality, are additional ways the restaurant farm partnerships in Portland may address these issues and encourage education, awareness, and action to positively impact their community. Sustainable development for restaurants, farms, and the city of Portland is contingent on a comprehensive sustainable agenda.

Restaurants view personal relationships, quality of local food, and environmental and social responsibility as opportunities to engage in sustainable practices. Barriers are restaurant size, limited availability of certain food products, and cost of locally sourced food.

Farms also view personal relationships and environmental and social responsibility to engage in sustainable practices as opportunities, as well as protection and support of small farms. Barriers for farms to engage in a sustainable food chain include inconsistency of restaurants, time, schedule, and delivery logistics.

The most significant driver for the adoption of sustainable practices in Portland is the innovation and leadership of individuals involved in restaurant farm partnerships. A consistent linkage is seen between innovative individuals with environmental and social

values and the adoption of a sustainable food chain. This is consistent with previous research.

In addition to Portland's sustainable pioneers, Portland's efforts to encourage local sustainable food chains are impressive due to Portland's food shed being in a sustainably-focused region. The Pacific Northwest "is known to be at the forefront of sustainability practices in the US food industry" and thus, "most food companies have an awareness of what sustainable practices entail and have implemented some of the practices" (Pullman *et al* n.a:24).

Location, therefore, is viewed as an opportunity for Portland's regional food shed both in terms of its sustainable culture and in reference to its abundant agricultural land. The Willamette Valley is a fruitful and productive agricultural region home to more than 170 different crops (King & Schafer 2007). There are several food products not available in Portland's food shed, including olives and citrus, but overwhelmingly, Portland's food shed is able to provide enough locally produced food to support the demand. Unavailable food products currently being sourced by restaurants non-locally need to be viewed by farms as opportunities for new markets and farmers need to be encouraged to experiment on growing these food products locally.

In part, Portland's abundant agricultural land is protected by Portland's state mandated urban growth boundary. Portland's urban growth boundary was enacted to limit sprawl, unrestrained development, and in an effort "by Willamette Valley farmers to protect their

livelihoods and communities from urban engulfment and scattershot subdivisions, with their disruptive effects on agriculture practices” (Sheie 2002:6) This cooperation witnessed between Portland’s city and farmlands supports local farmers and their ability to engage in restaurant farm partnerships.

Local organizations in Portland also support restaurant farm partnerships by providing resources, time, and money. Ecotrust, a non profit organization and specifically their food and farms program, in collaboration with the Portland chapter of the Chef’s Collaborative, invest in supporting local sustainable food through their annual Farmer Chef Connection conference and publication of the *Guide to Local and Seasonal Products*. These two efforts are invaluable to Portland’s restaurant farm partnerships. The Farmer Chef Connection conference is considered by all restaurants and farms interviewed to be helpful fostering new relationships in the beginning. The *Guide to Local and Seasonal Products* is a directory that continues to facilitate new partnerships and sharing of knowledge each year for new and existing restaurants and farms.

The case studies for this research highlight varying degrees of sustainable practices embraced in Portland’s restaurant and farm sectors and along food supply chains. While further efforts need to be made by the restaurant farm partnerships to address the complexity and sustainability of the food supply chain, expand on restaurants sustainable practices, find more innovative transportation means, increase education, explore opportunities to grow unavailable food products, and deepen restaurant farm partnerships to encourage greater logistical coordination, several successes are witnessed in the

environmental, economic, and social efforts of Portland's restaurant farm partnerships. Portland's rich agricultural land and unique food culture coupled with the investment of sustainable pioneers and supportive organizations such as Ecotrust encourage many successful restaurant farm partnerships and local sustainable food chains in Portland. Furthermore, the meaningful and respectful relationships witnessed in these case studies between restaurants and farms ensure sustainability and accountability for Portland's local food shed.

6.1 Recommendations to other regional food sheds interested in creating direct relationships between restaurants and farmers

In part, this research investigated Portland as a model in their use of sustainably locally produced food and direct market relationships. Other cities interested in stimulating a regional food shed may learn lessons from Portland's experience. Portland's restaurant farm partnerships are successful in connecting urban growers and eaters through direct relationships and are making a small, yet significant effort to encourage innovative environmental and social practices and adopt sustainable food supply chains.

Addressing the evolution of Portland's restaurant farm partnerships and their current successes and challenges provides opportunities to learn from Portland and develop strategies for stimulating regional food sheds. Portland's experience, however, will indefinitely need to be adapted to translate to different localities due to the complexities

of food sheds and food supply chains. Any effort is only as fertile as any given food shed, in terms of the number of local farmers, volume and variety of food they produce, food culture, community support, and demand for local food.

The evolution of Portland's restaurant farm partnerships addresses the need for 1) a supporting organization, 2) sustainable pioneers, and 3) meaningful partnerships. These efforts are contingent upon locality, city-wide efforts, agricultural practices of farms, transformative range of restaurants buying local food, and consumer education and support.

Portland's leading support organization is Ecotrust, specifically their food and farms program. In collaboration with the Portland chapter of Chefs Collaborative, Ecotrust started the Farmer Chef Connection network in 2001 in an effort to encourage the evolution of the local food movement and advance restaurant farm partnerships.

Ecotrust's available team of support for resources, sponsors, and volunteers is paramount in supporting Portland's successful restaurant farm partnerships.

Ecotrust's two major annual efforts are hosting the Farmer Chef Connection conference and producing the *Guide to Local and Seasonal Products* buyer and seller directory. The Farmer Chef Connection annual conference is a one-day event for local buyers and sellers with keynote speakers, workshops, unstructured and structured networking time, and a locally grown and prepared lunch. The conference aims to spotlight local buyer and producer experts in their field and create a space to exchange knowledge,

experiences, and contact details. In sharing their stories, restaurants and farms help community organizations and individuals understand best practices for successful direct market relationships. Many leaders in the sustainable local foods industry mentioned that this conference was very useful for them when they were just starting down their sustainable path. The *Guide to Local and Seasonal Products* is a directory that lists local buyers and sellers contact details, needed/available food products, and agricultural practices of farms. The guide is produced annually in print and online and includes notes to buyers and sellers of best practices learned from restaurants and farms at the Farmer Chef Connection conference.

Both the conference and the guide book have evolved considerably since 2001. The 2007 conference hosted over 300 participants compared to 103 participants at the first conference in 2001. The conference and book continue to expand their focus to include a wider representation of buyers and producers, including ranchers, cheese makers, vintners, grocery retailers, food service operators, institutional buyers, and food distribution companies. Consequently, these two efforts continue to evolve the supply and demand of locally produced food and cultivate a regional food network based on direct relationships.

Encouraging and supporting involvement of more buyers and sellers each year is paramount in growing a local food system. Efforts, including outreach and education, on behalf of supporting organizations and individuals involved in restaurant farm partnerships need to be promoted and continued. Each year, every participant in the

conference may be asked to bring fellow restaurant owners or farmers who are currently not involved in local restaurant farm partnerships. Information about restaurant farm partnerships and supportive resources may be distributed to restaurants and farms. It is also important to encourage not only a variety of local players, but also restaurants that represent a transformative range. Small-scale wealthy higher-end restaurants, as well as large-scale fast food restaurants, need to be involved.

Ecotrust is not only paramount in supporting and growing Portland's regional food shed by hosting the conference and producing the guidebook, but also in their efforts to share Portland's experience with other individuals and communities. Ecotrust produced a toolkit for "those interested in stimulating a business-to-business network of food producers and food buyers within a specific food region" in an effort to support other cities (Ecotrust nd:5). The toolkit highlights the Farmer Chef Connection conference and the *Guide to Local and Seasonal Products* as two ways to initiate and support regional food sheds and direct relationships between restaurants and farms. The toolkit provides templates, sample agendas, invitations, networking activities, evaluation forms, budgets, press release information, etc. for hosting a similar conference and creating a directory. A community organization or motivated individual may purchase the toolkit online. The toolkit may prove helpful in the technical details of hosting a conference and producing a guide book.

Restaurant and farm interviewees in Portland were asked whether the conference or guidebook is helpful in forging new relationships and/or sustaining existing relationships.

All individuals that attended the conference in past years believe the conference to be relevant and extremely helpful in creating partnerships when they first started getting involved in restaurant farm partnerships, however, the conference became somewhat irrelevant after their restaurant farm partnerships were well established. The guidebook, alternatively, continues to help both restaurants and farms wanting to increase their number of buyers or suppliers, interested in sourcing new ingredients, and in learning what food products are available in Portland's food shed.

The combination of Ecotrust's conference and guidebook help buyers and sellers establish local contacts and continue to engage in new relationships. A similar means of bringing people together for structured and unstructured networking time, in addition to sustaining this effort with an annually produced guidebook, may be one of many efforts that encourage the success of regional food sheds as witnessed in Portland. Both these efforts, however, must be part of a broader effort and are contingent upon a locality's sustainable pioneers and meaningful partnerships.

Sustainable pioneers act as leaders in the community and encourage creative means of sourcing food locally; they are motivated by their own personal environmental and social values and pride themselves in producing and buying fresh quality food products.

Sustainable pioneer farmers typically practice sustainable agriculture in an effort to minimize their environmental impact and maximize the quality of their food and sustainable pioneer restaurateurs typically reduce their waste and energy use and encourage education about sustainable practices among their staff. In their efforts, both

parties work to strengthen local partnerships. Their motivation to be innovators and their guiding principles make them important drivers in the adoption of local food sheds.

The sustainable practices on behalf of both restaurants and farms are highly contingent to the overall sustainability of a local food system. In particular, sustainable agricultural practices largely impact the total pollution of a food supply chain. Research contends that the greatest carbon emissions come from the use of fertilizers in conventional agriculture, not the distance food travels (Sonntag 2008). Local food systems need to support farms that practice sustainable agriculture. Furthermore, more pressure for restaurants to adopt sustainable practices is also imperative to increase the sustainability of the food supply chain.

City-wide efforts, including recycling and composting programs for restaurants, are needed to support local food systems. Portland's city-wide composting program helps restaurants reduce waste by collecting food waste for compost and delivers it to Cedar Grove Composting facility in Maple Valley, Washington. There may be an opportunity for local farms engaged in direct relationships to collect food waste from restaurants or for city-wide efforts to deliver food waste to local farms so that nutrients from compost may be recycled directly back into the local food shed.

Sustainable pioneers may already be active in a community, or they may need to be encouraged to become involved. The local chapter of the Chefs Collaborative is a good place to discover pioneers in the food industry. Chef Greg Higgins, of Higgins restaurant

in Portland, was one of the first sustainable pioneers in Portland. Chef Higgins inspired many chefs to join his cause, support local farmers, and educate the community about local food systems and sustainable stewardship. Chef Higgins continues to be a sustainable pioneer in Portland and in communities around the world.

At the first Farmer Chef Connection in 2001, sustainable pioneers were identified in Portland and asked to attend a workshop about developing successful relationships. From this workshop Ecotrust compiled best practice notes for buyers and sellers (appendix C). These notes are included in the beginning of the *Guide to Local and Seasonal Products* as well as in Ecotrust's toolkit. Best practice tips for buyers and sellers are helpful for restaurants and farms starting new partnerships. Communities interested in stimulating local food sheds may consider creating an opportunity for local sustainable pioneer buyers and sellers to discuss helpful tips for developing and sustaining successful local partnerships and share this information with other local restaurants and farms. They may also expand upon and use tips from those included in the *Guide to Local and Seasonal Products*.

Notes on how to forge successful relationships is one means of helping to support meaningful relationships between sellers and buyers, an additional important lesson learned from the Portland experience. Restaurant and farm interviewees repeatedly insisted on the need for chefs and farmers to embrace meaningful respectful relationships that encompass compassionate understandings of each others roles.

A strong partnership allows restaurants to understand farm schedules, challenges, and inconsistencies as a result of factors such as weather. Similarly, farms need to understand restaurants schedules, time management, and personal preferences. This consideration reduces frustrations and dissatisfactions. Meaningful relationships encourage both parties to articulate their needs early and clearly and may allow chefs to pick seeds out with farmers in the beginning of seasons. Likewise, chefs may work to create their menus after food delivers, embracing an ingredient to plate mindset. Such relationships increase standards, accountability, and long term environmental, economic, and social gains.

In addition to the support of a local organization, sustainable pioneers, and meaningful restaurant farm relationships, Portland's experience is embedded in its location. The number of local farmers, volume and diversity of locally produced food, agricultural practices, supply and demand for local food, food culture, and education are vital in Portland's evolution and sustainability of a regional food shed.

Portland's food shed has rich agricultural land and an abundant number of small farmers that are able to meet the local demand for seasonal food products. Many of Portland's small farmers pride themselves in producing a wide diversity and variety of food products, including heritage and heirloom varieties, as witnessed in interviews completed for this research. Farms and restaurants practice season extension to prolong available food products during the winter months. These practices improve the availability of locally produced food in Portland's food shed.

Portland also fosters a unique food culture. A significant amount of media attention is given to the restaurant farm partnership and there are city-wide efforts that support sustainable practices, including a city-wide composting program. All restaurants and farms interviewed are proud to source food locally and encourage others to get involved. Many restaurants are willing to pay higher costs for higher quality food products.

Yet, even with the rich agricultural land and diverse landscape of Portland's food shed, number of small farms, and unique food culture, Portland's food shed is currently not able to meet all the needs of its community. Several food products deemed essential by restaurants, including olives and citrus, are not produced in Portland's food shed and must therefore be sourced non-locally. This may be considered a challenge and opportunity for restaurants and farmers. Restaurants may research where and how such food products are grown and the most sustainable means of transport. Farmers may experiment and identify alternative means of growing these food products locally, including using greenhouses.

Other food sheds will face similar and possibly far greater challenges in meeting local demands for food products. Any given locality needs to be assessed to determine its ability to feed its local community and what opportunities and barriers may exist. An assessment of a given food shed is essential for a community to complete before starting efforts such as conferences and guidebooks. Included in such an assessment is identification of what resources a community has to support a local food movement and

identification of existing sustainable pioneers. Ecotrust developed a “Readiness Assessment,” which is included in their toolkit for building local food networks, and consists of questions about a given locality to help communities interested in stimulating a local food shed better understand the opportunities and challenges in their food shed (appendix D).

Portland’s experience also speaks to the need to encourage restaurants to educate their customers in order to further advance the sustainability of the supply chain and the food culture in Portland. The lack of education across the entire supply chain in many of Portland’s restaurant and farm partnerships is a missed opportunity. Other communities may learn from this missed opportunity; communities need to encourage and support education opportunities and creativity in their support of local restaurant farm partnerships.

Another missed opportunity in Portland is the lack of creative transportation systems for restaurants farm partnerships. The current transportation and distribution system for restaurant farm partnerships in Portland weakens the sustainability of their food supply chains and creates challenges in terms of logistics of delivery, time, money, and energy spent. Farms collectively transporting food products to restaurants, the use of distribution companies, and the use of alternative fuel for transport encourage more sustainable food supply chains.

Informal transportation networks may be the best means to stimulate creative food distribution. Neighbor farms may create partnerships and transport their food collectively. City-wide efforts, such as local food hubs, or efforts on behalf of supporting organizations may prove helpful, however, considering responses from restaurant farm interviewees a farm led distribution system will more likely be supported and sustained among farmers.

Portland's local food shed is continually evolving. Restaurants and farmers, through their personal experiences and partnerships with each other, face challenges and opportunities that provide insight on how to improve and sustain a regional food shed. Some of the previously stated recommendations for Portland's restaurant farm partnerships may continue to encourage further growth and sustainability in Portland's food shed and provide examples and case studies other regional food shed's may learn from.

7. Conclusions

Portland's restaurant farm partnerships are successful in connecting urban growers and eaters through direct relationships. These direct relationships encourage and support restaurants and small farmers, who characteristically practice sustainable agriculture methods, to advance efforts, awareness, and knowledge of sustainable food chains. The successes witnessed in the case studies for this research prove that agricultural history and tradition may be integrated with contemporary urban living.

In Oregon's geographically diverse state, Portland's blessings are many. Portland's rich agricultural land, coupled with Portland's urban growth boundary that protects nearby farmland, supports a significant number of small farms that are able to sustain Portland's restaurant farm partnerships with the diversity and volume of food they produce (King & Schafer 2007). Overwhelmingly, local farms practice sustainable agriculture, which encourages and contributes to the overall sustainability of Portland's local food system and local sustainable food chains.

Portland's food culture embraces a sustainable paradigm that allows people to see the interconnectedness of their food supply and how it is nested in environmental, social, and economic sectors within their community. It is contended that people more closely connected with the food they eat, gain a greater sense of place, awareness, and respect for the environment and are more apt to embrace a sustainable lifestyle.

An available team of support for resources, sponsors, and volunteers is imperative in stimulating restaurant farm partnerships and supporting and sustaining local buyers and sellers. The Farmer Chef Connection conference and the *Guide to Local and Seasonal Products* are both possible because of the effort, time, and money Ecotrust dedicates to supporting local food buyers and sellers. Such an organization or team of motivated individuals, sustainable pioneers, and meaningful partnerships are essential in developing and supporting a local food system. These efforts are also contingent upon city-wide

efforts, transformative range of restaurants buying local food, and consumer education and support.

Reducing travel time, energy and transportation costs, building stronger regional support networks, and sharing local and sustainable stories with consumers are means of deepening and strengthening Portland's restaurant farm partnerships and sustainable food supply chains. Restaurants in Portland supporting the restaurant farm partnerships need to develop more creative means of educating their customers and create greater demand for locally produced/sustainably harvested food.

Partnerships and networks are tools of support and tools for disseminating knowledge.

The more diverse the network is in terms of number of partnerships, the greater its resilience; the larger the network, the greater its support and impact of change.

Therefore, as Portland's sustainable local food system continues to grow and diversify, so will its community impact.

For future studies, it would be of interest to complete similar research in other locations in the US, specifically to determine the degree to which locality plays a role in the adoption of sustainable local food systems. It would also be of interest to interview individuals in Portland that do not participate in any sustainable activities to understand their motivations and future interests in supporting or opposing Portland's local food system.

Local food systems, including food supply chains, are complex in nature. There are many means to encourage a more sustainable community and sustainable food system, and the restaurant farmer partnership is only one of many efforts. Focusing attention solely on one effort in any given community confines the possibilities for invention and creativity.

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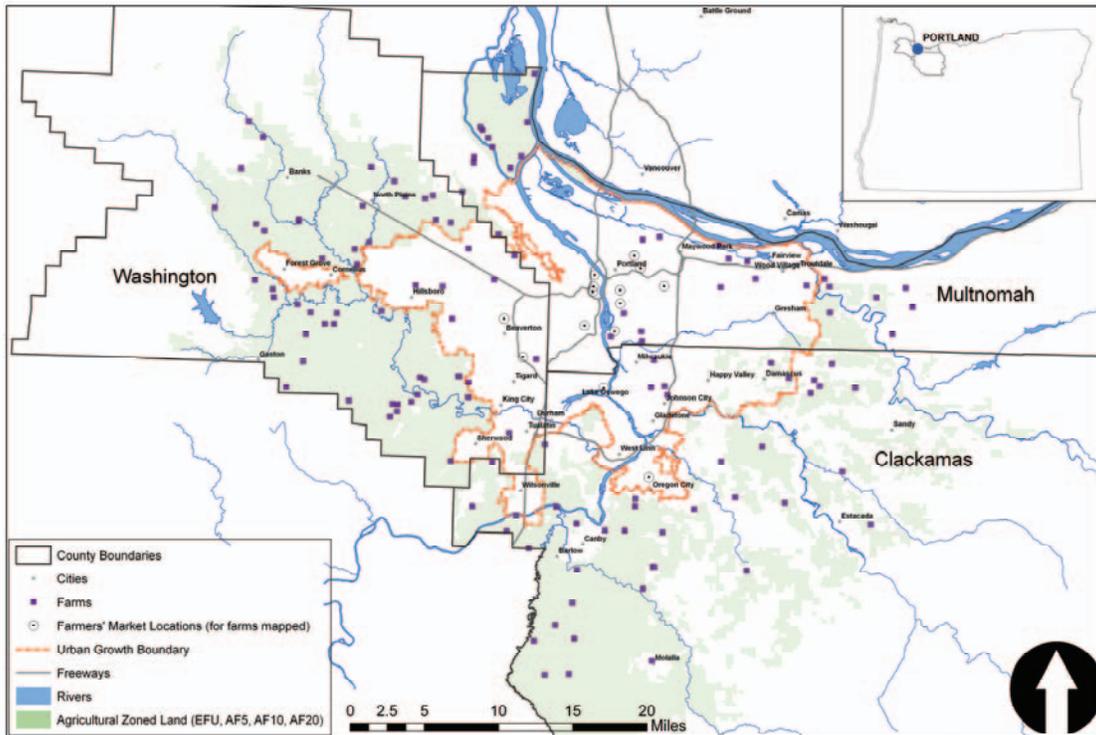
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Appendices

Appendix A: Map of Portland's Immediate Food Shed

Metro Area Farms Currently Engaged in Direct Marketing



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Appendix B: Restaurant Interviews

RESTAURANT INTERVIEWS

Purpose: I am completing a research thesis on the local food system in Portland, Oregon and the partnership between Portland's restaurant sector and agricultural sector. My research will address the debates surrounding local food, provide insight into Portland's restaurant agriculture partnership, and investigate the successes and challenges restaurant owners and farmers face in providing local food.

Restaurant

1. What is the name of your restaurant and how many years have you been in operation?
2. Please list any "green" characteristics of your restaurant design and operation - i.e.: is the building or furnishings made from recycled materials, do you use energy efficient light bulbs, buy nontoxic cleaning products, provide paper takeout containers, recycle or compost?
3. Does your menu change daily, weekly, or seasonally?

Suppliers

4. Who are your food suppliers? Has the number of your suppliers increased or decreased over the years? Why?
5. Do your food suppliers change seasonally?
6. Do you visit your supplier farms and/or know about their agricultural practices?
7. Is it important to you to purchase organic food products?

Local suppliers

8. Do you source food locally? If yes, for how many years have you done so and what percent of your total food served is sourced locally?
9. Who initiated the relationship with your local suppliers: the restaurant or the farm?
10. Do you focus on buying local food during the main growing season or do you purchase local food year round and practice season extension?
11. Are there any food or food products you cook with that you can not buy locally?
12. Are prices for local food products competitive with non-local food products?
13. What motivates you to purchase local food?

14. Do you educate your consumers on where their food is sourced from? How?

Food Chain

1. How is food transported to your restaurant? How often?
2. Would a centralized delivery system in Portland be helpful?

Challenges

1. What would you consider to be the main challenges in sourcing food locally?
2. Is there enough local food to support your restaurant?
3. What challenges do you face in practicing season extension?
4. Do you face challenges in terms of the number of your suppliers, their reliability, cost of food products, and/or logistics of transportation and delivery?

Resources

1. Are you a member of the Chef's Collaborative or any other local organization that supports the restaurant – farmer partnership?
2. Did you attend the Farmer Chef Connection seminar in March, 2008? If yes, how was it helpful or unhelpful?
3. Do you use any other resources to help facilitate your partnerships with local farmers? If yes, what resources do you use?
4. Are you interested in an on-line “virtual terminal” where you can order products from multiple local sources?

Future Plans

1. Do you have future plans of increasing or decreasing the amount of food you source locally?
2. Do you have future plans of increasing or decreasing the number of suppliers you work with? Why?
3. Wish list? – resources, information, policy change?
4. How can my research benefit you? Are there any specific areas you would be most interested in me researching?

Appendix C: Farm Interviews

FARM INTERVIEWS

Purpose: I am completing a research thesis on the local food movement in Portland, Oregon and the partnership between Portland's restaurant sector and agricultural sector. My research will address the debates surrounding local food, provide insight into Portland's restaurant agriculture partnership, and investigate the successes and challenges restaurant owners and farmers face in providing local food.

Farm

1. What is the name of your farm and how many years have you been in operation?
2. What do you grow on your farm?
3. How do you grow your crops – i.e.: what agricultural practices do you use (modern agricultural techniques, organic farming, holistic management, other)?
Do you have any certifications?
4. Where do you source your seeds from? Are they organic or conventional seeds?
Do you purchase any heirloom and heritage varieties?
5. Please briefly provide information on your management practices, including energy sources, irrigation systems, pest management, habitat conservation, and recycling.

Consumers

6. Do you sell your food products locally? How (restaurants, farmers markets, CSA, other)? What percent of your total food product is sold locally? What percent of your total food product is sold locally to restaurants?
7. If you sell locally, how long have you done so? Do you focus on selling locally during the main growing season or do you sell locally year round and practice season extension?
8. What motivates you to sell your food locally?

Restaurants

1. What restaurants purchase your food products?
2. Who initiated the relationship: farm or restaurant?
3. Have the number of your buyers increased or decreased over the years? Why?

4. Do you educate your buyers on where their food is sourced from and your agricultural practices? How?
5. Have any of your buyers visited your farm?

Food Chain

1. How do you transport your food products to your buyers?
2. How often do you transport food to your buyers?
3. Would a centralized delivery system in Portland be helpful?

Challenges

5. What would you consider are the main challenges in selling food locally?
6. What challenges do you face in practicing season extension?
7. Do you face challenges in terms of the number of your buyers and logistics of transportation and delivery?

Resources

5. Are you a member of the Chef's Collaborative or any other local organization that supports the restaurant – farmer partnership?
6. Did you attend the Farmer Chef Connection seminar in March, 2008? If yes, how was it helpful or unhelpful?
7. Do you use any other resources to help facilitate your partnerships with local restaurants? If yes, what resources do you use?
8. Are you interested in an on-line “virtual terminal” where you can post your available products for sale and buyers can order your products?

Future Plans

5. Do you have future plans of increasing or decreasing the amount of food you sell locally?
6. Do you have future plans of increasing or decreasing the number of buyers you work with? Why?
7. Wish list? – resources, information, policy change?
8. How can my research benefit you? Are there any specific areas you would be most interested in me researching?

Appendix D: Tips for Buyers and Sellers from Ecotrust's *Building Local Food Networks: A Toolkit for Organizers*

NOTES TO FOOD BUYERS

1. Commitment. Buy consistently from a core group of farmers and fishermen so they know what to expect, or communicate with your farmer/fisherman that you may be making purchases once in a while. Remember, if one of your producers has an item ready now and it isn't picked up, it may end up being tossed at a financial loss to the producer.

2. Delivery. Establish a delivery schedule with your farmer and fisherman.

3. Buying. Both buyers and sellers think about their bottom line. Expect to pay a fair price and consider that a local farmer's and fisherman's cost may be more than commercial shipped-in product. Don't expect the farmer and fisherman to be selling at a discount. Buy willingly and challenge yourself to use it well. Establish a predictable routine with your farmer and fisherman for phone calls, orders, and questions. Communicate what works for you, and you will receive great product.

4. Education. Continue to learn about the items your farmer grows and fisherman catches. Inspire your co-workers and employees to do the same. Items coming directly from a farm or the sea may look different from commercial items that your employees are used to seeing. They need to know how best to take advantage of that difference. Use the farmers and fishermen as a resource for learning about seasons, product use and availability.

5. Talk to your grower and fisherman. Taste the product with them and talk to them about what you plan to do with it and what it will be paired with. Ask your grower and fisherman how they use it. Most farmers and fishermen are great cooks because they cook directly from their garden or the sea. If you are unhappy with something let them know and why. It is in their interest to make you happy. Talk to your grower and fisherman about trends and request varieties you're interested in.

6. Cultivate trust. There is always a degree of uncertainty regarding the catch size, crop size and quality. Remain flexible and patient with your farmer and fisherman. It often takes weeks of production time and lots of luck to come up with a crop or catch, and things can happen overnight!

7. Be Flexible. Use what is fresh and in season. It will make your plates better. Generalize your menus. If certain vegetables or fish are fresh that day they can be incorporated into a dish without changing the menu. Take advantage of daily specials. Chances are if you have someone growing or catching your product directly for you, you'll find yourself with great starting ingredients and the potential for a rewarding relationship with farmers and fishermen.

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NOTES TO FARMERS, RANCHERS & FISHERMEN

1. Commitment. Restaurants, for cost control, need to be somewhat automated in their purchasing patterns. When a chef commits to buying a certain amount, the chef anticipates it to be delivered accordingly.

2. Delivery Schedule. Chefs depend on the arriving product. Work with your chef so the restaurant can have a steady stream of fresh product during the week. Also, try to establish a delivery system that works for both the kitchen and your schedule. Know your restaurant's busy times and plan your calls and visits around these times, not in the middle of them.

3. See what you can deliver. The chef is expecting a certain quantity, so don't short the kitchen. If the product is different than what you offered call the chef and ask if they still want it. Also, if you are selling meats or fish, make sure that you have the appropriate permits to sell to restaurants or retailers.

4. Sell your product. Chefs love free samples. Be generous with your prized product when you first stop by the restaurant (do call in advance!) and on that first delivery day encourage them to try and taste the difference. Sample at farmer's markets, where chefs are known to cruise and taste.

5. Know your customers and their customers. Eat in the restaurants where you deliver. Lunch is a cheaper alternative if offered. Just as important as having a chef visit you, you'll see how your product is used. You'll be inspired.

6. Be professional. Part patience and part diligence - remember to be consistent in your work and with your product. Assist the person receiving the delivery by collecting your boxes, be on time, courteous, and prepare invoices ahead. Call if you will be late.

7. Billing. Like any other businessperson you have a right to be paid on time. First time deliveries may be paid in cash, but it is far more efficient for everyone to establish an account.

8. Specialize and diversify. Diversify the product that you offer and make yourself unique. Research the market so you know what others are growing/catching and where the holes are. Talk to your chef about what they would like to see on their menus in the future. Be creative.

Appendix E: Readiness Assessment from Ecotrust's *Building Local Food Networks: A Toolkit for Organizers*

BUILDING LOCAL FOOD NETWORKS

Lessons learned from the
Farmer-Chef Connection and the
Guide to Local and Seasonal Products

TOOLS, TEMPLATES and SAMPLE MATERIALS

Before you set the wheels in motion to build a local food network, take the time to think about these questions. They are meant to help you evaluate for yourself whether you are ready, and whether this toolkit will be useful to achieve your goals. These questions are meant to help bring your community context into focus as you move forward.

a. What is (are) your goal(s)? _____

b. Is there a “critical mass” of food producers and food buyers in your region likely to be interested in relationship-based direct marketing of local/regional goods, and who are in need of support to do so? YES NOT SURE

c. If yes, what do you know about them currently?

i. What is the geographic region you are focused on? _____

ii. Is there a “critical mass” of producers? YES NOT SURE

iii. What kind of producers (farmers, ranchers, etc.)? What do they produce? _____

iv. Is there a “critical mass” of buyers? YES NOT SURE

v. What kind of buyers (restaurants, grocery retailers, processors, etc.)? _____

vi. Are producers currently engaging in any direct marketing? If so, who do they sell to? (These people might be important allies, collaborators, or champions of your effort). _____

vii. How are goods transported? _____

viii. If goods are processed (such as meat), how and where are they processed? _____

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ix. What, if any, issues/challenges do producers and/or buyers face?

x. Is there a consumer base in your community that is ready to embrace local/regional food and support businesses that supply it (for instance, will consumers be enthusiastic about restaurants or grocery retailers that carry goods bought directly from local/regional producers)?

YES NOT SURE

d. Do you anticipate that anyone will be threatened by your efforts? Who and why?

e. Are you excluding any relevant groups or individuals as you think about planning?

f. Have you identified any partners or collaborators to help build a local food network? Who?

g. Have you thought about how to financially support and sustain a local food network? What are your ideas? _____

h. What do you perceive to be your greatest challenge in establishing a local food network, and how do you intend to overcome it? _____

If you're not sure how to answer the questions above, we advise you to gather more information. Get out into the community to talk to people who can help you answer these questions – producers, buyers, retailers, extension service and other food system resource people.