PORTLAND REGIONAL FOODSHED CURRENT SITUATION REPORT

Produced for

Western Sustainable Agriculture Research and Education

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TABLE OF CONTENTS

PROJECT OVERVIEW

The Portland metropolitan area is well known nationwide for its cutting edge sustainability vision, urban development and farmland protection framework. The region has a large number of productive small farms within and near urban areas. There is a growing interest in, and support for, locally grown, sustainable food. This interest is driven by rising concerns over public health, food security, transportation costs, climate change, economic turmoil and the search for a more community-based, sustainable lifestyle. There is growing support for farmers markets, community supported agriculture (CSA), community gardens, local healthy food school programs and institutional purchases of fresh, locally grown produce. Increasing locally-sourced fruits and vegetables is also a goal of the Oregon Food Bank.

Western Sustainable Agriculture Research and Education (SARE) has provided funding for this study to examine key agricultural trends, identify producer needs and define strategies to strengthen the local food production system. The goals of the study are to:

- Define the Portland Metropolitan Foodshed; identify related agricultural and economic trends and develop a needs assessment based on input from producers and other stakeholders.
- Assemble a regional toolkit of strategies to support evolution of a sustainable Portland Metropolitan Foodshed.
- Work with the City of Damascus, Oregon to test the toolkit on a local level.
- Develop a research and educational program that supports these goals and supports small and medium farmers in the region.

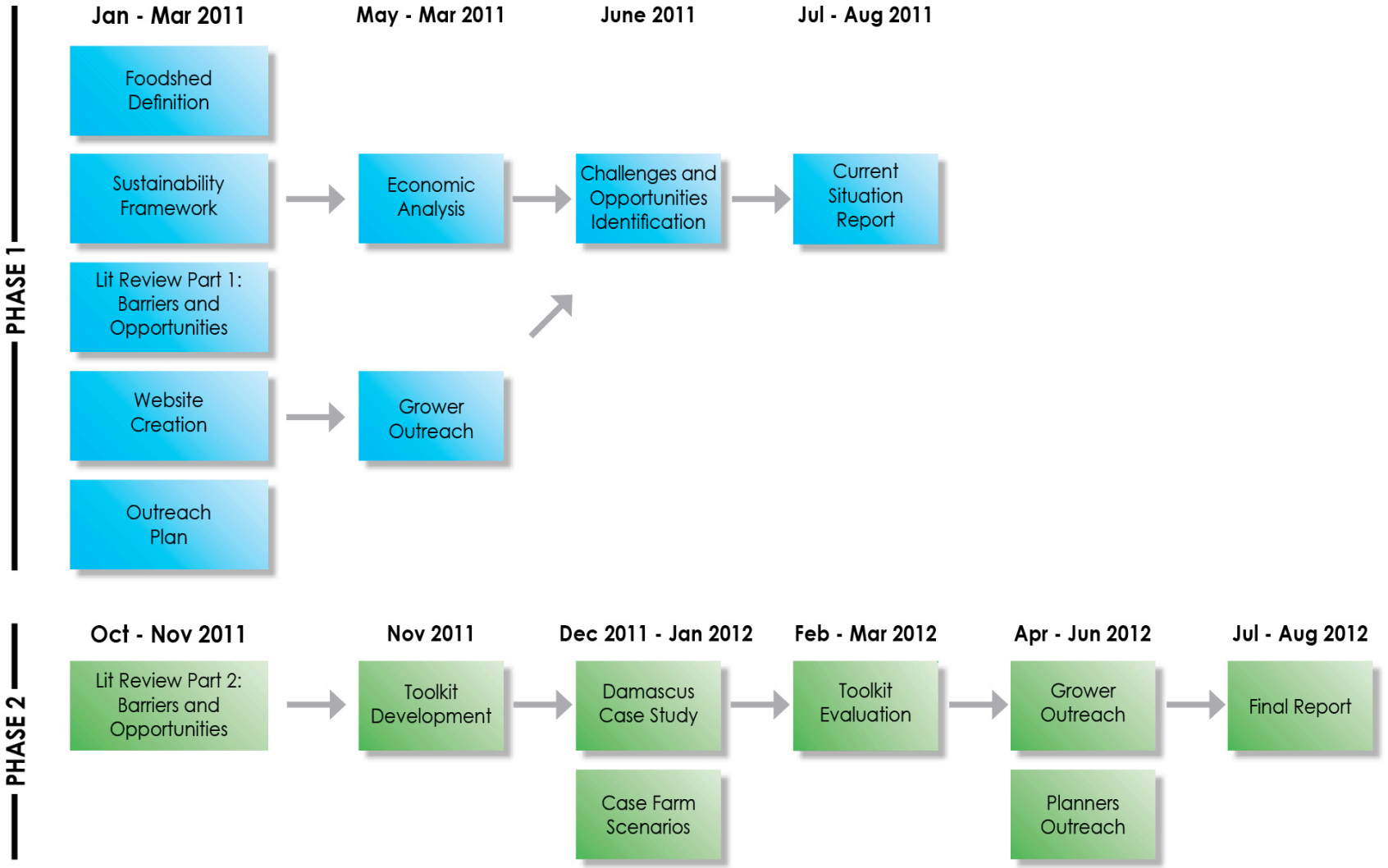
This project has the support of a private-public-academic coalition within the Portland region: Portland State University's Institute for Metropolitan Studies (PSU), Oregon State University (OSU), the City of Damascus, Cogan Owens Cogan, LLC (COC) and leading agricultural producers.

The goal of Phase 1 is to assess and quantify the current situation, including gaps, barriers and challenges for small producers in the Portland Metropolitan Foodshed. This report also identifies opportunities and strategies for producers, consumers and government officials to strengthen the regional food economy.

Phase 2 will focus on developing tools to overcome the gaps, barriers and challenges identified in Phase 1. Case farm studies from the City of Damascus as will be used to test the toolkit to ensure its effectiveness. Figure 1 illustrates the process and timeline for this project.

FIGURE 1

Portland Sustainable Foodshed Study Timeline 2011-12



METHODOLOGY

As mentioned in the overview, the goal of this report is to assess and quantify the current situation of the Portland metropolitan foodshed economy. The report findings are derived in large part from existing data sources, summarized in the literature review and economic profile. Primary data was collected through interviews and surveys were with more than 100 small and medium farmers.

This report is concerned with the Portland Metropolitan Foodshed. The Foodshed is defined geographically as Columbia, Clackamas, Multnomah, Washington and Yamhill Counties and the systems that support the food supply. This is a smaller region than the standard Metropolitan Statistical Area (MSA), which also includes Clark and Skamania Counties in Washington. While some data sources include information for the entire MSA, findings and recommendations are limited to Oregon as the toolkit will be designed within the context of Oregon's land use planning system and economic development strategies. Data sources that pertain to the entire MSA are noted as such.

A complete account of the information and data sources for this report can be found in the following sources attached as appendices:

- FRAMEWORK
    A. Definition of the Portland Metropolitan Foodshed
    B. Sustainability Guiding Objectives
- CURRENT SITUATION
    C. Literature Review: Major Trends, Case Studies and Key Issues
    D. Portland Region Food System Economic Profile
    E. Core Farmer Group Interviews
    F. Farmer Surveys

FRAMEWORK

This section of the report provides a geographic, sustainability and economic framework for our study of the regional food economy.

Foodshed

A foodshed may be defined as the geographic area within which the food for a specific population originates, as well as a mechanism for understanding the systems in place that drive the flow of that food supply.[1] Thus, the scale of our foodshed from smallest to largest includes:

1. Local: yard, block, neighborhood, city, county
2. Regional: Portland, OR region; Willamette Valley; State of Oregon; Columbia Basin; West Coast
3. United States
4. Mexico and Canada (The North American Free Trade Agreement guides trade in North America)
5. All other countries

While our local and regional foodshed does include flows of supply and demand at all the above scales, this report is concerned with the Portland Metropolitan Foodshed. The geographical extent of the foodshed could be justifiably defined in a variety of ways. This report defines the foodshed as Columbia, Clackamas, Multnomah, Washington and Yamhill Counties and the systems that support the food supply.

The four components of the food economy are:

Producers (Growers, Farmers) are the places and their owners that grow food. From the smallest to the largest scale, these include: yards; community gardens; public planting strips, medians and other small places; nature/the wild; and farms.

Processors are the methods and facilities where raw foods and byproducts are processed and packaged for distribution. The extended cluster is a mix of commodity producers, specialized, niche producers, processors, distributors and packagers. From smallest to largest, these include individual processors, shared facilities/equipment, mobile processors, small-scale processors, large processors, and byproduct processing facilities.

Distributors are the various delivery methods by which food gets to consumers, including: food clubs; community supported agriculture operations (CSAs); farm stands; farmer's markets; corner groceries; gleaners; restaurants; catering, regional markets; supermarkets; and commercial wholesale distributors.

Consumers ingest and utilize food and its byproducts made by producers and processors at all scales and delivered by the various distribution methods described above. Consumers include: individuals/households; the landscape; institutions; animals; and fuel-based machines.

[1] Blum-Evitts, Shemariah, *Designing a Foodshed Assessment Model: Guidance for Local and Regional Planners in Understanding Local Farm Capacity in comparison to local food needs,* Master's Thesis, May, 2009

The "food system model" in Figure 2 is adapted from the San Francisco Food Alliance's *2005 San Francisco Food System Assessment.*[2] It illustrates the high-level flows of inputs and outputs between Portland Metropolitan Foodshed producers, processors, distributors and consumers.

These four components of the food system economy are closely related and interact in a dynamic fashion with growers engaging directly and indirectly with consumers, processors, and distributors. The regional foodshed economy also functions within a broader set of contexts including: human communities (cities and towns), economic systems at different scales, political systems, social and cultural systems, and ecological and natural systems. These systems provide necessary labor, capital, public policies, cultural values (supporting local farmers), as well as clean water, healthy soils and biological diversity that make it possible for regional agriculture to succeed.

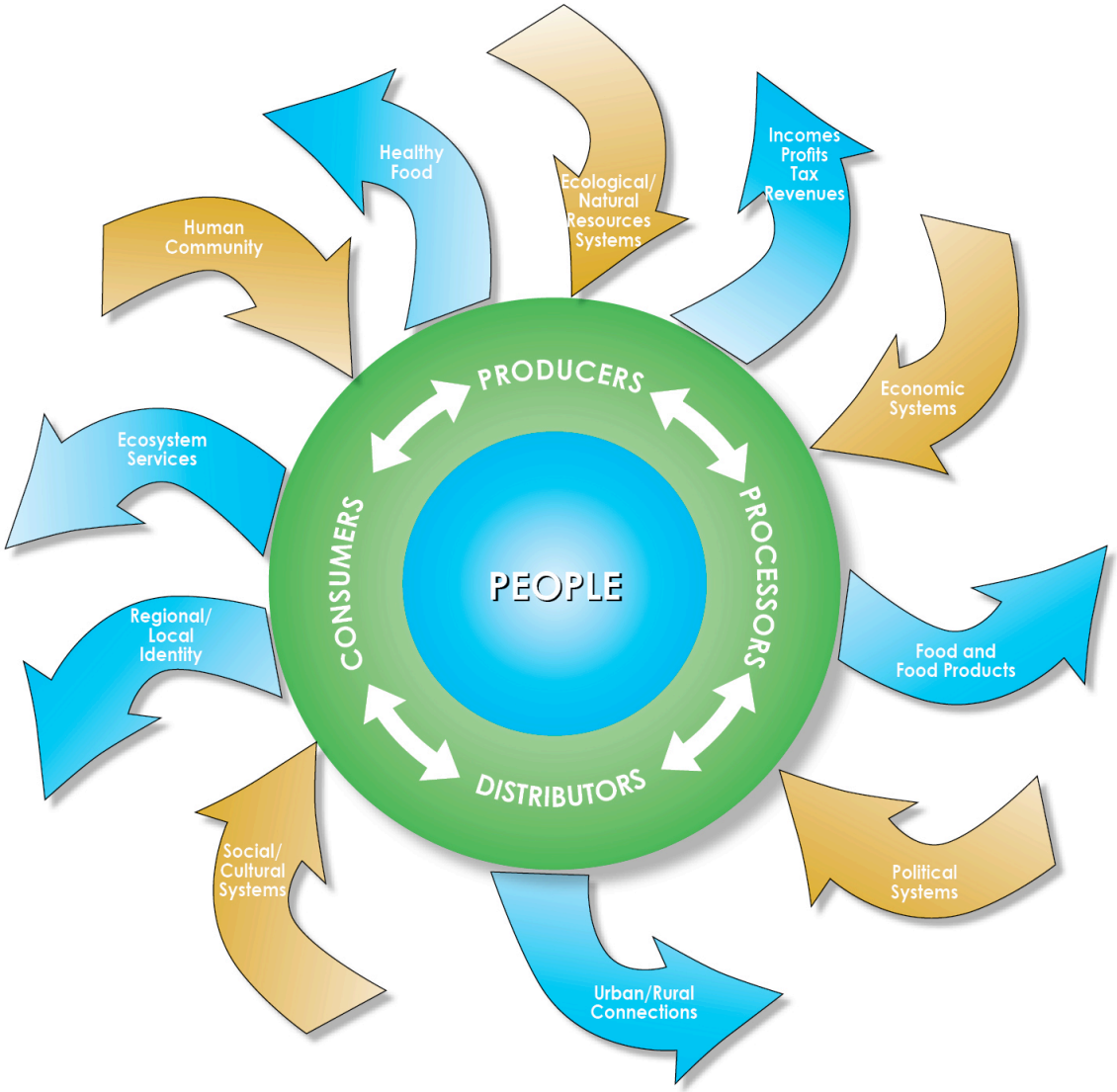
The system produces several "products:" or outputs including: ecosystem services (e.g., clean water and air), incomes profits and tax revenues, regional and community identity and project s (e.g., farmers markets), increase urban and rural connections, healthy food to prevent disease, and importantly for this project – food and food products.

While the authors are aware of these larger food system elements, this project is focused on producers and their need to be productive and economically viable. Some of these relationships are discussed below in the balance of this report.

[2] San Francisco Food Alliance, *2005 Collaborative Food System Assessment,* http://www.sffoodsystems.org/pdf/FSA-online.pdf

FIGURE 2

Regional Foodshed Economy Model



Using a farmers market as an example, food grown on rural residences and small farms and collected in the wild goes directly to the farmers market as produce, such as apples, mushrooms and corn. Food from these producers also arrives at the market via small processing facilities, mobile processors or shared commercial kitchens/equipment in processed forms like jams, butchered meats and baked goods. Finally, food sold at farmers markets is bought directly by individual consumers, as well as by restaurants and caterers, who then serve the food to individual eaters.

Each point in the journey food takes from producer to consumer creates byproducts that can be repurposed. Food that isn't sold can be donated to gleaners, such as the Oregon Food Pantry or homeless shelters to be eaten by under privileged individuals. Inedible foods may be composted and used packaging may be composted or recycled. .

There are many important parts of the foodshed economy that don't fit easily into the above categories. For example, each part of the foodshed system includes workers (farmworkers and owners) and suppliers (e.g., tools and implements) which are integral parts of the local food-based economy.

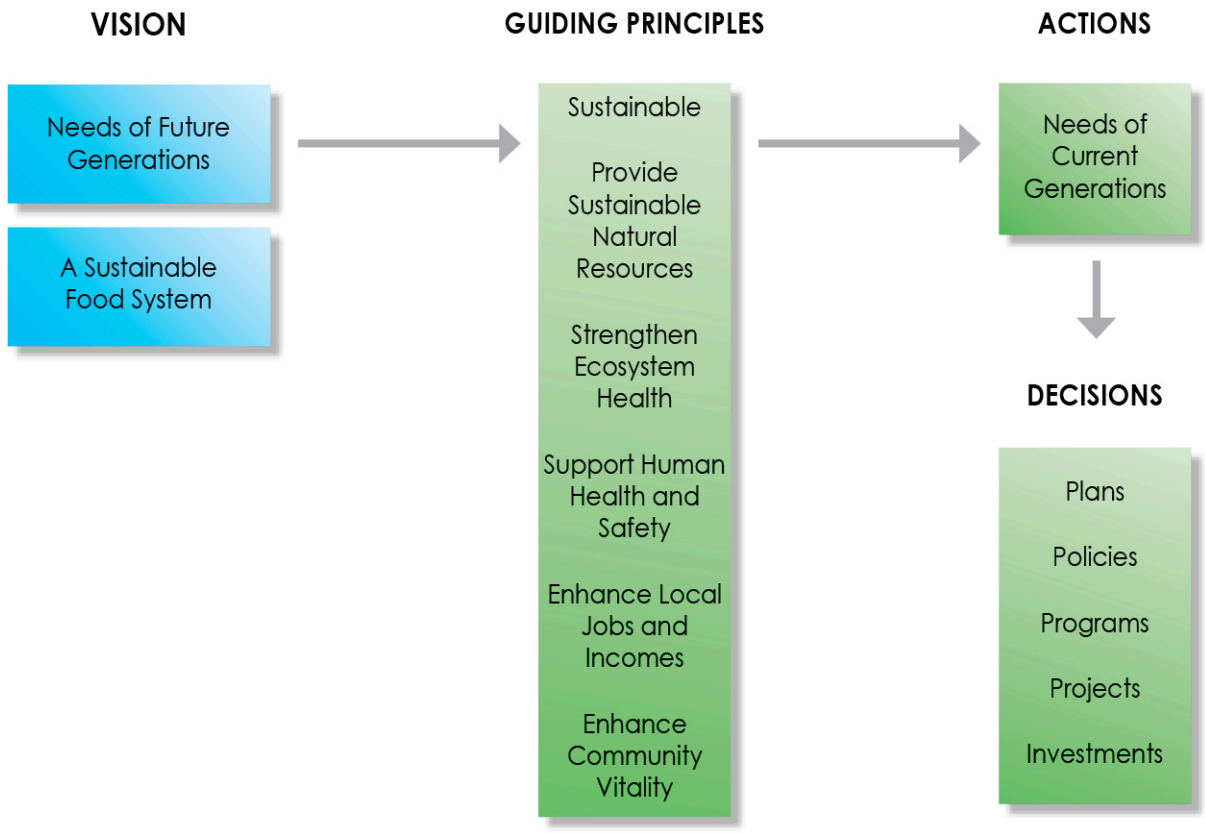
Sustainability

Sustainability has many definitions addressed to different scales of human activity and relationships to economies and the environment. This project considers three definitions and examines their common elements and develops a synthesis. They include the Brundtland Commission definition, the Triple Bottom Line (TBL) and the Natural Step (TNS). These three concepts of sustainability are widely used in the Portland region by public, private, and non-profit organizations. To date we have found limited information that they have been systematically applied to foodshed research and education. The three definitions include several common themes that appear to be useful to foodshed planning and growers as they consider how sustainability impacts their strategies and operations. (See Appendix B for a summary of these Brundtland, TBL and TNS concepts):

These three frameworks can be integrated into a single synthesis that provides general guidance to all major elements of the foodshed economy -- production, processing, distribution and consumption. Our recommended sustainability framework for foodshed sustainability is illustrated in Figure 3. The three major elements of the framework include a vision of a sustainable food system that incorporates the needs of future generations (both human and other life forms), a sustainability filter based on guiding principles (derived from the Brundtland Commission, TBL, and TNS) and actions taken today to improve the functioning of the regional food economy focused on the needs of growers and current generations.

FIGURE 3

Sustainability Framework as Applied to Urban Foodshed Agriculture



A few examples of how the sustainability vision and guiding principles apply to agriculture follow:

- Sustainable food system focus on the needs of both current and future generations (Brundtland Commission). E.g., enhance soil fertility, farmland preservation and protection, economic viability of growers, support family ownership succession.
- Focus on sustainable use of renewable natural resources (The Natural Step). E.g., use biomass or wind power for energy production, implement rainwater harvesting as a water source, develop farm related carbon and ecosystem service markets.
- Focus on enhancing ecological system functions (The Natural Step). E.g., protect and restore stream banks, enhance biodiversity, plant native plant hedge rows.
- Focus on avoiding and be cautious in the use of toxics (The Natural Step)[3]. E.g., reduce the use of toxic chemicals and eliminate the use of bio-accumulating toxins.

[3] Traditionally the use of toxics has been seen focused on efficiency (using fewer toxics). William McDonough and Michael Braungart in *Cradle to Cradle*, propose focusing not just avoiding the use of toxics but replacing these substance with materials that are essentially organic fertilizers (e.g., producing the bio-degradable plastic tub made from corn). This application of "eco-effectiveness" is closely related to the relatively new science of green chemistry and sustainable materials science.

- Focus on the benefits to individuals and families (The Natural Step). E.g., develop diverse and stable farm incomes, provide safe working environments, provide fair pay for farm workers, provide clean and sanitary housing for farm workers.
- Focus on benefits to communities support farmers markets and community gardens as community gathering places, support local farm purchases by institutions and local markets, support demonstration and community farms, improve farm events and agricultural tourism. (Triple Bottom Line)
- Achieving benefits to ecology, economy and society at every scale. (Triple Bottom Line)

Economic Goals for the Foodshed Economy

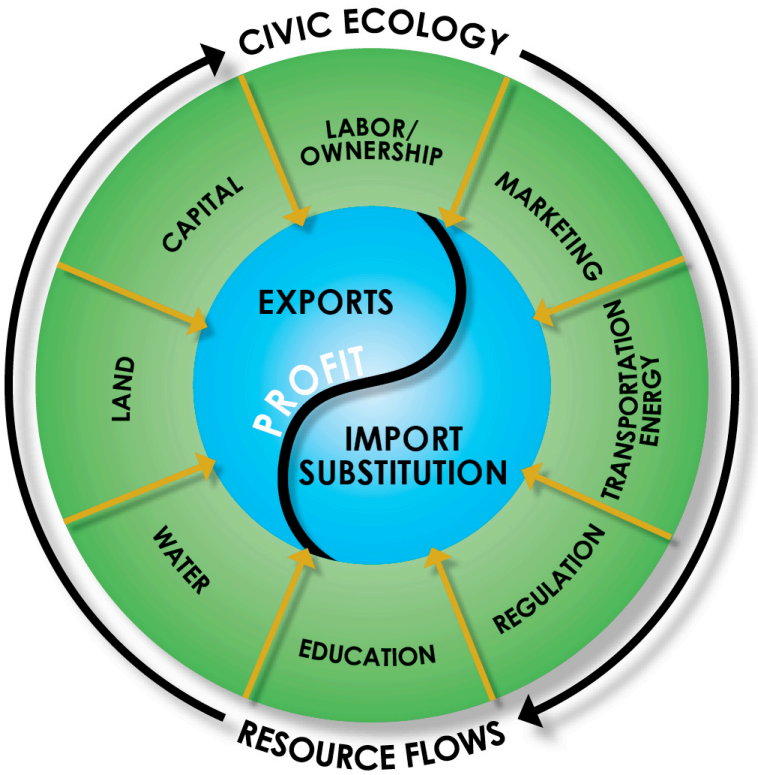
The foodshed economy should pursue four key economic goals to strengthen the regional foodshed economy and support agricultural producers:

- Strengthen the foodshed civic ecology
- Increase exports (traded sector)
- Accelerate import substitution
- Increase profits derived by producers as the sell for export and locally

Figure 4 illustrates the relationships among these four economic development goals.

FIGURE 4

Economic Concepts



Strengthen Civic Ecology. One approach to realizing a more viable regional foodshed economy is the application of Civic Ecology: an integrated web of energy, resources, goods, services, capital, and information flows that animate communities, institutions, cities, and regions. According to Tim Smith, FAICP, AIA, of SERA Architects, "Many communities and institutions have begun to realize that attaining sustainability requires careful attention to planning, constructing, and managing a comprehensive framework of community systems." [4]

Civic Ecology resources include both the "hardware" (roads, buildings, etc.) and "software" (social capital, civic organizations, etc.) of a community. Civic ecology methods have been applied already in Damascus, Oregon as part of the comprehensive planning process. When applied to the regional food system, the "hardware" may be comprised of resources such as land, water, transportation and energy. Information, services and other "software" systems may include marketing, regulations, capital, labor and education.

Accelerate Import Substitution. The import substitution approach to economic development substitutes externally (imported) produced goods and services, especially basic necessities such as energy, food, and water, with locally produced ones.[5] By doing so, local communities can put their money to work re-circulating within their boundaries. This approach takes the form of "buy local" campaigns, support for smaller local businesses that produce locally and localization of the supply chains of national and international distributors of food. The concept of import substitution in the food system is relatively straight forward.

Regional foodshed farmers spend $740 million per year (1969-2009 average) to raise their crops, $475 million of which is spent buying inputs sourced outside the region.[6] Meanwhile, consumers spend more than $4.3 billion buying food sourced outside the Portland region. Thus, total loss to the region is approximately $4.7 billion of potential wealth *each year (see caveats below)*.[7] This loss amounts to nearly five times the value of all farm products now produced in the region. The value of imported food is greater than that of the entire food production of the State of Oregon.

Direct farmer-to-consumer sales is a relatively small part of the regional foodshed economy at $12 million. This is estimated to be 1.5 percent of farm sales and 0.25 percent of the region's consumer market. A 10 percent substitution of locally produced food and for imports would potentially generate $430 million in local income.

Further, there appears to be l capacity in the region to produce more food for local sales and exports. For example, in conducting a study of potential for food production in Clackamas County, Oregon, one researcher found that there is significant opportunity to grow local food to substitute for a large portion of currently imported food crops, especially fruits and vegetables. To date the economic and carrying capacity-sustainability implications of doing so have not

[4] http://www.serapdx.com/project.php?category=7&project=126
[5] University of Michigan Tubman College of Urban Planning: http://www.umich.edu/~econdev/importsub/
[6] Bureau of Economic Analysis, 2009. This total was calculated by multiplying the average household expenditure on food (reported in surveys of consumers by the Bureau of Labor Statistics Consumer Expenditure survey) by the number of households in the region.
[7] Meter, Ken, Crossroads Resource Center, *Metro Portland (Oregon) Local Farm and Food Economy.* May 2011.

been examined. Further analysis and outreach with local producers is needed to determine the potential impact of import substitution on the regional food economy.

Caveats must be placed on this analysis. First, it will be difficult to predict how consumers, processors and distributors will change their purchasing practices and if those changes will be a net benefit to the region. Second, shifting from high value exported nursery products to local food production could possibly reduce the income to the region. Third, consumers might shift other purchases to food reducing other purchases such as consumer goods (although these are not produced primarily in the region). Fourth, although land capacity for increased food production appears to be available it is not clear that farming will be profitable. This is especially the case for the smallest farms which often have outside income from non-farm employment. Assuming all of this, if exports can be held harmless or increase and production increased to substitute for current imports it will clearly benefit the agricultural economy.

Expand Exports. Exports of food and food products are an important, even critical, part of the regional foodshed economy. Currently, at least 90 percent of food crops produced in the region is exported. Advances that expand or make more efficient exports can potentially grow the profits for local producers. Economic strategies that may decrease the amount of food exported to other areas (see Accelerate Import Substitution) should be approached with caution and the potential trade-offs between import substitution should be considered. Other factors to consider include the potential added productivity of existing and new agricultural lands, transportation costs and the price of fuels, increased employment, greenhouse gas impacts, the availability of federal incentives and supports, and the clustering of related companies to support the supply chains for both exports and import substitution.

Increase Growers Profits. A central concept of foodshed economic development is to increase incomes and profit for local growers. Profits can be strengthened by exporting more, selling more in the local and regional foodshed markets, adding value to products (e.g., making jam from fruit),and by reducing costs of the key resource flows that are part of the region's civic ecology Several ideas for increasing profit are addressed in the Opportunities and Strategies section of this report.

This conceptual framework of the foodshed economy focuses on strengthening the availability and linkages of resource flow needed for local food production (Civic Ecology) to strengthen exports (import capital from outside the region) and substitute locally produced food for imports (to reduce the outflow of capital and circulate more wealth regionally). Civic Ecology, exports, and import substitution work in tandem to increase wealth and the economic viability of growers in the region.

For example, a small grower might initially focus on fresh berry production for farmers' markets, then form a CSA, sell to institutions and regional markets through a distributor such as the Organically Grown Company. At some point the grower may decide to make jam, dried fruit, nutraceuticals[8] or other processed product. New growing techniques, such as stormwater

[8] Any substance that is a food or part of a food and provides medical or health benefits, American Nutraceutical Association.

harvesting, might be added to grow more product. Processing may allow part of the production to be exported. This approach is discussed further in the Opportunities and Strategies section of the report.

In pursuing these concepts of the regional foodshed economy there may be tradeoffs between producing more food for exports and strategies to substitute regionally-produced food for food that is currently imported. Land, water, labor and other resources for farming may be limited, so growers will need to determine their best strategies for success.

Two key considerations will need to be how to increase the profit margins of growers and increase the co-benefits of exports and import substitution to the regional economy.

CURRENT SITUATION

This section of the report assesses and quantifies the current state of the Portland foodshed economy and provides the basis for toolkit development. The information that follows is derived from both existing sources and primary research, including:

- A literature review to provide the global and national context for this study, describe local trends impacting the Portland regional food economy and identify issues to address in the toolkit.
- A profile of the Portland foodshed economy.
- Interviews and surveys with small and medium farmers to help define needs of growers in the regional foodshed economy.

Literature Review[9]

This section is a summary of major findings drawn from a literature review of national and international sources to:

- Provide the global and national context for this study.
- Describe state and local trends impacting the Portland regional food economy.
- Identify issues facing local farmers to address in the toolkit.

The full literature review document with sources is included in Appendix C.

Global/National Trends

The following are major global and national trends that provide the context for foodshed economic development planning:

- Rising fuel costs, climate change, replacing food crops with biofuels, increased meat consumption and politics are all contributing to the rising cost of food globally.
- Rapid urbanization creates vast numbers of new consumers, often poor, who require affordable food in foreign markets.
- Approximately 840 million people suffer from chronic hunger and 2 billion suffer from macronutrient deficiencies indicating another large food market.
- The distance between consumer and producer continues to increase, while energy costs and GHG emissions also increase.
- Metropolitan regions are developing community-based agricultural economic development strategies often within the context of a more comprehensive food policy.
- Several studies indicate that a important way that expansion in local food systems could benefit local economies is through import substitution.
- Most metropolitan foodshed areas import several millions of dollars in food every year.
- In most cases, demand for local/regional food exceeds the local supply. (However, there is substantial waste in the food system).
- The prevalence of cheap, unhealthy food is a major threat to consumer health and the economic viability of specialty and small farmers.

[9] The literature review attempted to gather major documents in this rapidly emerging field. A critical validation review of the resources available was not conducted at this time

- There is a growing interest in locally and sustainably grown foods across the U.S. and Canada.
- Clusters of community-based food businesses create jobs, but equally important, they create collaborative groups of new business owners working together to address barriers and pursue opportunities.
- The key "lever" driving change in some emerging food systems is commerce based on relationships of mutual trust, through clusters of firms that grow in concert with each other.

Oregon State and Local Trends

The following is a summary of trends in Oregon and the Portland region that impact the local food economy.

- Oregon is one of the strongest agricultural states in the nation in terms of length of growing season, quality of agricultural soils, and the diversity and quantity of food crops that are produced.
- Oregon currently ranks second among all states for the number of people who are forced to skip or reduce the size of their meals because they cannot afford enough food (*termed very low food security).*
- Small Oregon farming operations or adaptive farms tend to have average gross sales per acre that are about twice as high as the overall farm average.
- While Oregon's land use laws have protected agricultural acreage, they may also have constrained the development of adaptive farms and agricultural tourism.
- Between 2002 and 2007, the number of Oregon farms in organic production increased from 515 to 933 and from 1.3% of total farms to 2.4%.
- Between 2002 and 2007, the market value of Oregon's organic farm sales rose from about $9.9 million to $88.4 million or from 0.3% of total farm sales to 1.9%.
- According to the Oregon Farm Bureau, three quarters of what is produced in Oregon is exported to other states and overseas with ¼ sold in Oregon.
- Oregon has less industrialized agriculture than other states because of the diversity of farm products, size of farms, with high production of specialty crops, such as fruits, vegetables, tree nuts, dried fruits and nursery crops.
- Oregon has a strong base of multi-generational, family farms and emerging farmers, such as immigrants and a younger generation with a renewed interest in farming.
- There is an opportunity to develop Oregon's regional food infrastructure for storage, processing, marketing and distribution that supports the community food system movement, especially for small and mid-sized growers.
- Portland metropolitan agriculture is an important industrial cluster in the region's economy producing nine percent of total regional employment.[10]
- Portland metropolitan residents, organizations and governments value agriculture and locally-grown food.
- Agri-tourism is popular and has potential to address farm income needs, e.g. Sauvie Island Corn Maze.
- There are significant land use, policy, economic and other barriers to the long-term success of local growers.

[10] *Exports Begin at Home*, PowerPoint, Brookings Institution, September, 2011.

- Many local governments and institutions are exploring opportunities to buy local food products.
- Gaps in the available literature include:
    - Total regional imports and exports.
    - Economic multipliers for various parts of the Portland metropolitan foodshed economy.
    - Detailed needs and issues faced by local growers and strategies to diversify their incomes.
    - Types and certifications for sustainable farming methods used in local agriculture.
    - The economic impact/opportunity of food waste.
    - Information on the regional food processing industry.

Challenges faced by Growers Based on the Literature Review

This section identifies key issues faced by farmers and producers in urban/urbanizing areas:

- Barriers to local food-market entry and expansion, primarily land and capital availability.
- Education and training for farmers and employees especially in farm business practices leading to profitability.
- Availability of experienced and well-trained farm labor force especially concerning the availability of seasonal workers.
- Insufficient linkages between growers and food distributors/markets (e.g., a large portion of regional food purchases are through fast food establishments and national chains that have limited regional food purchases).
- Limited processing and storage capacity (e.g., limited test kitchens, mobile processing, small scale certified processing, efficient collection and distribution systems suitable for small growers etc).
- Institutional and grocery store requirements for quality and seasonal availability that limit local food access to those markets.
- Age profile of farmers and interest of heirs that indicates a major generational shift in ownership will happen in the next ten years.
- Protection of farmland and the right to farm in the urban expansion lands and where urban farming might occur.
- Zoning and land use regulations that limit the ability of growers to diversity their incomes steams such as agritourism strategies including farm stays and destination farms.
- Zoning and land use regulations that do not support urban farming as open space, employment lands or transition lands.
- Water availability and quality where residential and urban users have priority over agriculture.
- Obstacles to the general practice of urban agriculture including the sights, sounds, and smells of farming that are objectionable to some urbanites.
- A traditional split in the political, cultural, educational, economic systems of urban and rural areas (the “urban-rural divide”.

Economic Profile

Global and National Trends

Food shortages now are a global phenomenon. The World Watch Institute's 2011 *State of the World Report i*ndicates there are 925 million undernourished people worldwide. This is especially challenging in sub-Saharan Africa. According to the report, several factors are putting pressure on the global food system:

- Global warming. Climate change is resulting in rising temperatures with almost every year in the past century.
- Water shortages. Pressures on water supplies in arid environments are having a dramatic impact on food production (e.g., major drought in Russia).
- Growing populations. There are an estimated 80 million new mouths to feed every year.
- Increasing food prices. The global food price index jumped 32 percent in the second half of 2010 – the highest jump ever recorded.
- Use of grains for sweeteners, motor fuels and livestock feed. More food grains are used to produce motor fuels and to feed animals reducing their caloric availability for human consumption.[11]

At the same time, there is another challenge – or is it an opportunity? According to United Nation Food and Agriculture Organization (FAO) approximately 40 percent of all food produced is wasted while stored, transported, processing and packed. This system failure leaves millions of people hungry worldwide.[12]

These trends have resulted in increased prices for U.S.-produced commodities (wheat, soy, corn etc.) in a global market resulting in increased farm gate receipts for large commodity growers. At the same time the US government continues to provide large subsidies for commodities and fewer incentives for fresh and local foods for regional markets.

During the 2008-2009 period organic agriculture expanded globally to 37.2 million hectares, a 150 percent increase in one year. In the U.S., organic produce is the fastest growing segment of food production. According to the USDA, organic foods now occupy prominent shelf space in the produce and dairy aisles of most mainstream U.S. food retailers, as offerings of organic meats, eggs, breads, grains and beverages have increased. The marketing boom has pushed supermarkets, club stores, big-box stores and other food retailers to carry organic products. Many retailers have introduced lines of organic private-label products and manufacturers continue to introduce large numbers of new organic products.[13]

These trends are being noticed and responded to locally. In North America several metropolitan areas, including New York, Vancouver, B.C., Minneapolis and San Francisco, have undertaken studies or developed strategies to strengthen their metropolitan food economies. It is estimated that every metropolitan area in the U.S. is importing millions, if not billions of dollars a year in food from outside their regions. This scale of imports into each region is

[11] State of the World Report, 2011. World Watch Institute, Washington, DC.
[12] SustainableBusiness.com: http://www.sustainablebusiness.com/index.cfm/go/news.display/id/22617
[13] Insert Source

getting the attention of local officials as they look to revitalize there regional farm economies and promote more healthy foods.

This movement to support local food systems is documented in a new report of the Union of Concerned Scientists.[14] Major findings include:

- Local food systems are expanding rapidly in the United States.
- The economic, environmental, and health impacts of these food systems depend on how consumers' purchasing decisions are altered. For example, local fruits and vegetable are generally healthier than processed foods.
- Local and regional food systems can have positive impacts on regional economies. Local direct purchases of food and production supplies can create thousands of new jobs.
- Local and regional food systems have scalability challenges. Local institutions, processing infrastructure or regulations may limit the potential of local and regional food sales.

Recent study has focused on two unintended consequences of the current food system – hunger and obesity. Oregon ranks third in the nation in hunger[15] while over 25 percent of our people are obese.[16] Getting local and healthy food to people, from local farmers, in a sustainable manner can address these challenges simultaneously – probably with large benefits to the region. An important health goal of the foodshed economy is to produce more marketable/profitable fruits, vegetables, legumes, and grains all of which are generally beneficial to human health.

Two major efforts are underway in the region to address these challenges. Multnomah County has developed a comprehensive plan for food addressing local food production, healthy eating, social equity and economic vitality through a widespread community engagement process (see: http://www.multnomahfood.org/about). Clackamas County is developing an agricultural investment plan designed to support a vital agricultural economy local focused on local food and other farm products such as Christmas trees and nursery plants), biomass energy production, agricultural tourism, and equine development. Both of these efforts indicate that local governments are interested in seeing the local food economy thrive.

Portland Foodshed Economy

As mentioned earlier, the food economy can be divided into four sector components: production, processing, distribution and consumption. Table 1 provides information for food-related businesses in the Portland region according to these sectors. Consumption comprises more than half of the annual payroll and two-thirds of the employees in the Portland foodshed economy.

[14] Market Forces: Creating Jobs Through Public Investment in Local and Regional Food Systems, 2011. Union of Concerned Scientists, Cambridge, MA.
[15] Daily Beast: http://www.thedailybeast.com/articles/2009/11/18/our-ranking-of-the-hungriest-states.html
[16] Trust for America's Health: http://healthyamericans.org/report/88/

Table 1. Food-Related Businesses in the Portland Foodshed (2008)

Sector	Business Type	Number of Firms	Employees	Annual Payroll (millions)
Production	Agricultural Supply	103	916	$37
Production	Farm and Garden Machinery Wholesalers	43	414	$18
Production	Farm employees	-----	21,429	$450
Production	Farm operators	9,233	11,418	*($53)
	Production Sub-Total	***9,379***	***34,177***	***$452***
Processing	Food Manufacturing	239	8,536	$329
Processing	Beverage Manufacturing	98	1,596	$47
	Processing Sub-Total	***337***	***10,132***	***$376***
Distribution	Grocery Wholesalers	275	7,917	$336
Distribution	Farm Product Wholesalers	28	224	$22
Distribution	Alcoholic Beverage Wholesalers	49	2,340	$102
	Distribution Sub-Total	***352***	***10,481***	***$460***
Consumption	Food & Beverage Retail	992	21,616	$531
Consumption	Food Services and Drinking Places	5,090	79,497	$1.153
	Consumption Sub-Total	***6,082***	***101,113***	***$1,684***
	Total	**16,150**	**155,903**	**$2,972**

Notes:
1. Data cover the Portland MSA, an area larger than the foodshed study area with a population of 2.2 million.
2. Some of the 9,233 farms are run by a married couple or multiple business partners, so there is a total of 11,418 operators. This data comes from the Census of Agriculture.
3. Data on Farm Employment (hired labor) comes from the Bureau of Economic Analysis economic profiles for the seven counties in the Portland Metropolitan Statistical Area. It differentiates farm owners and farm employees. BEA has a slightly lower number for farm operators than listed here.
4. Non-farm employment is drawn from U.S. Bureau of the Census, County Business Patterns. This data does not include farms.
5. "Payroll" for employees is taken from total cost of farm labor reported by the region's farms. "Payroll" for farm operators is net cash income from farming for metro area farms.
*Net cash income was negative in 2008. This was allocated to farm operators while employees earned the money listed.

Production

Land

The Portland foodshed's 9,233 farms encompass more than 500,000 acres, amounting to three percent of the state's farmland and 24 percent of Oregon's farms. As shown in Table 2, Clackamas County has the greatest number of farms (3,980) and farm acreage (182,743) in the Portland metro area, followed by Yamhill, Washington, Columbia and Multnomah counties. Approximately 78 percent of farms are less than 50 acres (7,174 farms) while only one percent 1,000 acres or more. The average farm size is 63 acres.[17]

[17] Agricultural Census, 2007.

Table 2. Foodshed Farm Types (2007)

Farm Typology (2007)	Clackamas		Columbia		Multnomah		Washington		Yamhill		Portland Foodshed	
	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Limited-resource	500	14,029	98	2,981	68	2,691	221	6,037	258	9,822	1,145	35,560
Retirement farms	969	37,341	220	13,068	136	N/A	365	15,465	467	28.663	2,157	65,903
Residential/lifestyle	1,668	35,341	360	20,960	191	4,324	670	15,567	899	29,902	3,788	106,094
Farming occupation/ lower sales	461	17,703	100	6,748	81	2,515	229	13,043	216	12,419	1,087	52,428
Farming occupation/ higher sales	72	8,237	8	N/A	20	N/A	49	8,446	39	8,341	188	25,024
Large family	48	12,733	4	N/A	17	2,095	46	13,879	32	13,615	147	42,322
Very large family	88	32,778	2	N/A	20	6,207	70	32,973	57	46,453	237	118,411
Nonfamily	183	24,581	13	8,345	30	N/A	111	22,574	147	31,631	484	87,131
Total	**3,989**	**182,743**	**805**	**52,102**	**563**	**17,832**	**1,761**	**127,984**	**2,115**	**152,212**	**9,233**	**532,873**

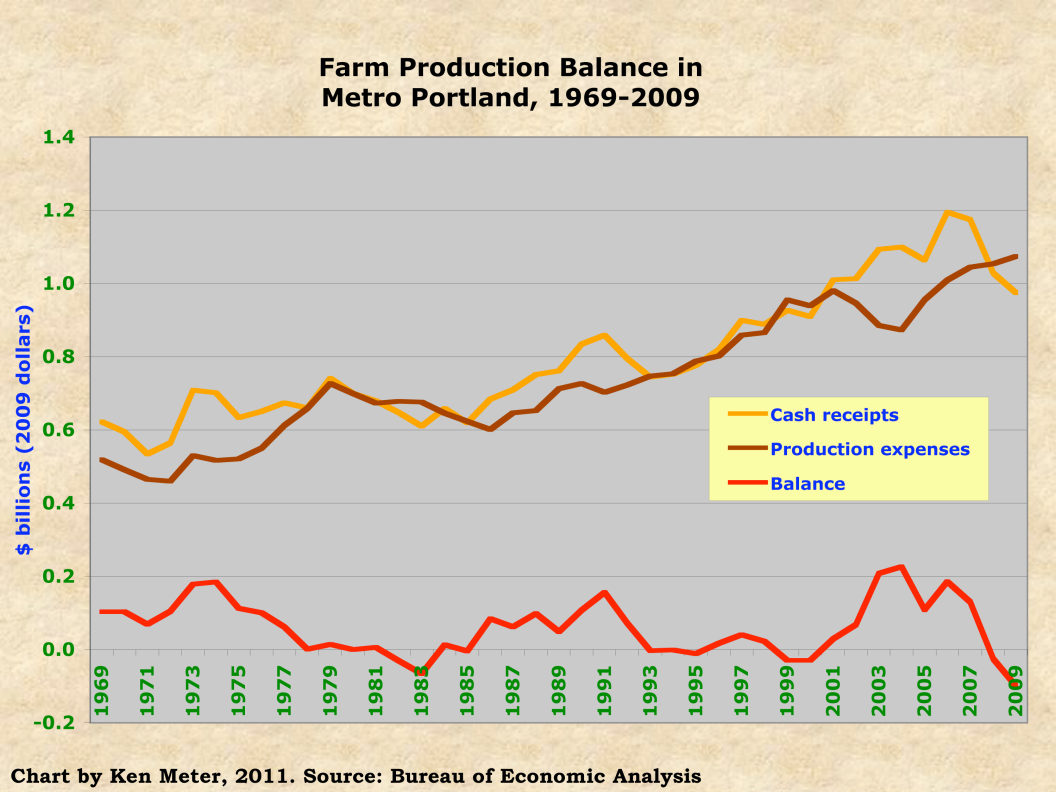
Agricultural Census, 2007.

Sales

As shown in Figure 5, Portland foodshed farms sell $799 million of products (food and fiber) per year (1969-2009 average). Sales of nursery crops, ornamental shrubs, Christmas trees and grass seed make up a large share of these sales. Even major food items (fruits, nuts and berries; poultry and eggs; and milk and dairy) are often sold as commodities for further processing, not as food for direct human consumption. Furthermore, these products are often exported out of the region.[18]

[18] Bureau of Economic Analysis (BEA), 2009. Note, BEA farm income data differ from Agricultural Census data from the U.S. Department of Agriculture (USDA). For the Portland foodshed, BEA farm income data is lower, while expense figures are also lower, for an overall lower net income. For one thing, BEA data ends in 2009 while USDA data are from 2007. BEA says the major difference between USDA and BEA data sets is that BEA data offer a fuller accounting of depreciation costs, in line with international standards. BEA also says it hopes to update its computer model.

Figure 5



Portland foodshed farms sold more than $1 billion worth of products in 2007, as shown in Table 3. Nursery and ornamental products make up the majority of these sales, totaling more than $700 million. Food sales totaled approximately $302 million in 2007. The top-selling food products were fruits, nuts and berries at $139 million followed by poultry and eggs ($59 million) and vegetables ($56 million).[19]

Table 3. Top Products Sold by Portland Region Farms (2007)

Product	Food Sales (millions)	Nonfood Sales (millions)	Total Sales (millions)
Nursery and ornamentals*		$608	$608
Fruits, nuts & berries	$139		$139
Forage*[20]		$86	$86
Poultry & eggs	$59		$59
Christmas trees*		$54	$54
Vegetables	$46		$46
Milk & Dairy*	$34		$34
Cattle & calves	$20		$20
Wheat*	$8		$8
Horses*		$5	$5
Total	**$306**	**$753**	**$1,059**

Agricultural Census, 2007.
*Sales totals incomplete due to data suppression by USDA.

[19] Agricultural Census, 2007.
[20] USDA defines "forage" as "Feed for livestock composed of plants grown for haying or grazing."

More than $943 million of crops were sold in 2007 (88% of all sales). Approximately 71 percent of the foodshed's farms sold less than $10,000, with aggregate sales representing out one percent of the region's farm product sales. Ten percent of the foodshed's farms sold more than $100,000 of products, with aggregate sales that account for about 94 percent of the foodshed's farm product sales. Approximately 66 percent (6,077) of the foodshed's farms reported net losses, similar to the Oregon average of 65 percent. [21]

Direct and Organic Sales

In 2007, 1,796 farms in the Portland foodshed sold $12 million of food directly to consumers. This is a 10 percent decrease in the number of farms selling direct and a 117 percent increase in direct sales since 2002. 249 farms in the foodshed sold organic foods ($21 million of sales), representing 28 percent of Oregon farms selling organic products and 24 percent of state organic sales.[22]

Income

Portland foodshed farmers sell $799 million of products per year (1969-2009 average), spending $740 million to raise them, for an average annual gain of $59 million. In nine of the past forty-one years, the farm sector experienced an overall negative cash flow from raising products. [23] Overall, farm producers have enjoyed gains of $2.5 billion since 1969. However, 66 percent of the foodshed's farms and ranches reported a net loss in 2007.[24]

Federal farm support payments averaged $8 million per year for the region over the same years. Many farm families rely heavily on off-farm income. The most steadily increasing cost of production is hired labor, at a cost of $443 million in 2009.[25] In 2007, Portland region farmers spent an estimated $475 million buying inputs that were sourced outside the region.[26] This creates a significant flow of capital out of the region.

Expenses

Farm production expenses for foodshed farmers totaled more than $739 million in 2007 as shown in Table 4. Hired labor makes up more than one third of farm expenses at $301 million, followed by supply purchases ($77 million), feed purchases ($62 million) and depreciation ($62 million).[27]

[21] Agricultural Census, 2007. Sales data for Columbia County were suppressed by USDA to protect confidentiality.
[22] Agricultural Census, 2007.
[23] Bureau of Economic Analysis, 2009.
[24] Agricultural Census, 2007.
[25] Bureau of Economic Analysis, 2009.
[26] Agricultural Census, 2007.
[27] Agricultural Census, 2007.

Table 4. Farm Production Expenses, 2007

Expense	Cost
Hired Labor	$301 million
Supply Purchases	$77 million
Feed Purchases	$62 million
Depreciation	$62 million
Seed Purchases*	$52 million+
Fertilizer	$41 million
Contracted Labor	$40 million
Loan Interest	$37 million
Pesticides	$34 million
Gasoline/Fuel/Oil*	$33 million+
Total	**$739 million+**

Agricultural Census, 2007.
*Seed purchase and gas/fuel/oil data from Columbia County were suppressed by USDA to protect confidentiality.

Processing

No comprehensive study of food processing has been completed for the Portland region. The Oregon food processing and distribution sectors include 197 companies not including final food preparation at retail supermarkets or other food-related businesses downstream of the initial food processors.[28] In addition to food processing, the expanded food cluster also includes farm production, packaging and machinery, transportation and warehousing. The sector generates $6.1 billion in added value and directly employs more than 23,000 workers (2006).[29]

As discussed earlier, five processing sectors make up $7.6 billion or 62.3 percent of processing sales: frozen food manufacturing; dairy; fruit and vegetable canning, pickling, and drying; breweries, wineries, and distilleries; and bakery goods, pasta, and tortilla manufacturing.[30]

In 2009, processing comprised the largest portion of direct agricultural sales in Oregon, with an output of more than $12 billion. The processing sector employed 31,308 people and contributed more than $2 billion in value added expenditures. [31]

Distribution

No existing data source is known that accurately measures local and external regional food supplies. Other foods that are not sold directly from farms to consumers are still locally traded. It is estimated that roughly 90% of the food eaten in the region is sourced outside of the region. This estimate is based upon the experiences of other states and interviews with local purveyors.[32]

[28] Includes companies of at least 20 employees or estimated annual sales of $1 million or more.
[29] Oregon Business Plan: www.oregonbusinessplan.org
[30] Oregon State University Extension Service, Rural Studies Program, *Oregon Agriculture and the Economy: An Update.* February 2011.
[31] Oregon State University Extension Service, Rural Studies Program, *Oregon Agriculture and the Economy: An Update.* February 2011.
[32] Agricultural Census, 2007.

Consumption

The 1.8 million residents of the Portland region received $72 billion in income in 2009. Real personal income has increased more than three-fold since 1969, in part based upon a near-doubling of population. Food consumption has consequently increased, as has the retail price of food — yet farm income has declined.[33]

Portland region residents purchase $4.8 billion of food each year; $2.8 billion to eat at home.[34] Most of this food, at an estimated value $4.3 billion, is sourced outside of the region. Approximately $12 million of food products (1.5 percent of farm cash receipts, and 0.25 percent of local consumer needs) are sold by Portland foodshed farmers directly to consumers, but not always to Portland region consumers, since these may include internet sales.[35]

All people in the region do not have access to affordable local foods. 442,229 residents (26%) earn less than 185 percent of the federal poverty guideline. At this level of income, children qualify for free or reduced-price lunch at school. Thus, in our region more than one out of every four people has uncertainty about their ability to purchase essential foods. These lower-income residents constitute a significant market spending $900 million each year buying food, including $359 million of SNAP benefits (formerly known as food stamps) and additional millions of WIC coupons.[36]

Approximately 24 percent of Portland region residents reported in 2009 that they eat five or more servings of fruit or vegetables each day. Seventy six percent do not. This is a key indicator of health, since proper fruit and vegetable consumption has been connected to better health outcomes. Fifty five percent of the region's adults report they engage in at least 30 minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20 or more minutes three or more days per week. Sixty percent of the region's residents are overweight (36%) or obese (24%) and 7% of the region's residents have been diagnosed with diabetes.[37] Medical costs for treating diabetes and related conditions in the metro region are estimated at $1 billion per year.[38]

A targeted market strategy to increase consumption of local healthy foods among those without access could increase local farm income while helping reduce problems related to poverty and utilize federal funds currently used to purchase imported food to stimulate local economic development. This economic development strategy will require collaboration among growers, markets and distributors, the medical profession, health departments, social service agencies, food pantries and food policy professionals. Issues that will need to be addressed

[33] Bureau of Economic Analysis, 2009.

[34] This total was calculated by multiplying the average household expenditure on food (reported in surveys of consumers by the Bureau of Labor Statistics Consumer Expenditure survey) by the number of households in the region.

[35] Agricultural Census, 2007.

[36] Federal Census of 2000, Bureau of Labor Statistics and Bureau of Economic Analysis.

[37] Centers for Disease Control.

[38] American Diabetes Association medical cost calculator.

include purchasing policies and incentives, perception, ability and time to cook, marketing and psycho-chemical food responses.[39]

Grower (Producer) Outreach

Outreach to more than 100 small and medium farmers was conducted to help define the situation and needs of growers in the regional food economy and verify the information gathered through the literature review and economic profile. This section documents current practices, gaps, barriers and challenges faced by urban influence farmers in our region. Outreach efforts include:

- In-person interviews completed with five core farmers from the Portland regional foodshed.
- On-line survey taken by 50 local farmers and producers.
- On-line survey taken by eight individuals interested in farming.
- Survey conducted at the North Willamette Horticulture Society Meeting taken by 65 growers.

Farmer Profile

Survey respondents farm more than 4,200 acres, with individual farms ranging from zero to 850 acres, averaging 53 acres and median farm size of six acres. Approximately 09 percent of respondents own and 79 percent lease portions of their farmed land. The majority of these farms are located in Multnomah (21), Clackamas (20) and Yamhill (12) counties. The average age of principal farm owners is approximately 47 years with a median age of 46. Annual gross sales from this land ranged from $0 (mostly farms that began operation in 2010) to $1.6 million with median gross farm sales of $22,000. The primary source of gross farm income for respondents is crops (55), followed by value added and processing activities (19), livestock (13), and non-edible crops (12). More than 56 percent of respondents generate all of their sales from organic production. A majority of farms (68%) require non-farm supplemental income to stay in business. More than 80 percent of respondents would like to expand the output and revenues of their farms and reduce costs. Approximately 50 percent would like to increase their land base. Nearly sixty percent of respondents would be interested in joining a cooperative or similar organization.

Survey respondents primarily communicate with their customers in person (96%) via the Internet (73%) or by phone (64%). They market/sell most of their farm products through farmers markets (37), CSAs (34), and on-site or to the local community (23). Other products are sold to restaurants and wholesalers. Nearly all survey respondents target the Portland Metro Area market and plan to continue to do so. Farmers who travel to sell their products traverse an average of 46 and median of 30 miles to their markets. Barriers to effectively market products include time (17), access to capital (9), a lack of marketing expertise (7) and regulations (5). Nearly 60 percent would welcome marketing assistance.

[39] See the September 24 New York Times article by Mark Bittman, *Is junk Food Really Cheaper*?

Farmers who completed the survey have an average of one other family member working on farming operations full-time and 1.4 family members working part-time. An average of seven (median = one) additional non-family employees also work on farming operations. More than 83 percent of respondents indicate that their labor pool is both stable and adequately skilled. More than 88 percent of respondents use local employees and nearly 60 percent use migrant workers.

Respondents face a number of barriers and challenges, with 77% stating they have conflicts in their ability to produce their products in a safe and efficient manner, mainly due to pesticide/herbicide drift from neighboring farms and government regulation. The majority of conflicts arise with local governments (47%) and non-farm neighbors (41%). Regulatory barriers include certification systems (53%), land use permitting (53%), water rights and supply (45%), labor laws (35%), farmers markets (33%) and the tax structure (20%).

Gaps, Barriers and Challenges

The following gaps, barriers and challenges identified through research and verified through outreach to producers can be conceptualized as flows within the Civic Ecology framework described above. They are influenced by public policy and market forces which affect the availability, quality and timeliness of these resources growers need to be successful. Quotes in text boxes are taken from interviews with regional farmers.

Capital

Many farmers identify the need for capital sources as a primary need for farm improvement and expansion. Capital is the primary need for survey respondents to increase their capacity to generate new markets, increase revenues and reduce costs. It also is identified as the second biggest barrier to production. Capital is needed for various purposes including but not limited to for land to expand farm operations, production or processing equipment, season-extending materials, meeting requirements (e.g. food safety), water/energy/resource/land conservation measures, and to finance start-up operations.

> *"I would like to have a new building and rainwater collection for year-round operations, but capital is a barrier. Capital is also a barrier to getting the equipment needed to handling composting operations."*

Land

Most farmers both own and lease land. Forty-five percent of survey respondents would like to increase their land base in order to expand their operations and increase revenue. Barriers to land base expansion include a lack of capital, conflicts with neighbors, urban growth and related uncertainties, and conflicting adjacent land uses.

"The location of my property is problematic. Creeping development and farming on both sides of Highway 212 causes too many problems. I get complaints from property owners about existing operations. ODOT won't let me cross the highway with farm equipment. Also, the land is very rocky, causing lots of damage to equipment."

Water

Water access and related costs are an issue for many farmers. Water is a critical factor in production and farmers often do not control sufficient water sources to meet their needs. More than 40% of survey respondents identify water rights and supply as a regulatory barrier they face. Water rights are often reserved for residential, commercial and industrial uses with farmers being the last in line. Municipal water is expensive to use for irrigation due to pricing structures (price increases as water use increases). Rainwater harvesting systems and equipment are not standardized and are expensive. Drip irrigation and other efficiency systems are also expensive. Black and grey water systems are not widely permitted or used.

"Water rights and access prevent me from doing more on my property. Paying for city water to irrigate the farm is very expensive. I would rather have an irrigation well, but am located in an area with limited groundwater that is reserved for domestic use. City water rates are structured so that the more you use, the more they charge you."

Labor

A majority of survey respondents indicate the labor force is stable (77%) and adequately skilled (82%). Farmers use both local and migrant laborers. Volunteers also help comprise the labor pool although they must come through a certified educational program. Labor challenges include inspections, hygiene and safety, workman's compensation and unemployment claims, access to/provision of affordable housing, documentation and the future of guest worker programs.

"We have 20 full-time employees; 80-100 at harvest time. Most full-time employees are from Mexico. The wages paid allow them to send money home to family to build a home and live comfortably. Most of them have worked for us for at least 10 and up to 40 years… We do not have a problem finding workers with a 60-70% return rate."

"I could have a more robust education program if I could have actual interns. I have to comply with wage laws but a lot of people want to volunteer and learn, but it's illegal for to do that unless through a formal educational program."

Ownership/Succession Management

While the average age of principal farmer owners responding to the survey is 48, the average for all farmers in Oregon is 57. This indicates that there will be a major transfer of farm ownership in the next twenty years. Many farmers plan to transfer land/farm ownership to a family member (53%), family trust (27%), co-worker or employee (13%) or land trust (7%).

Sixty-eight percent of survey respondents do not have land/farm transference plans formalized in a legal document, and 82 percent indicate they need assistance with legal and tax issues.

> *"I would like to leave a portion of the farm as a testament to parents and family in Damascus. This would allow my son to continue farming if he desires and continue our small-scale sustainable farming heritage. I have enough financial support to retire, by selling some land, if need be."*

Education and Management Expertise

Many farmers get into farming because of their love of the process and have little business experience. There also is a group of new farmers who have little experience with the industry. Many farmers would like to receive education on farm business related topics such as business planning, management, marketing and finance to help them become more profitable. In a survey of eight of these new farmers, half of them indicate a need for education to help overcome challenges of operating a farm as a business. Farmers face a variety of challenges in accessing educational services. Their work schedules often include 80+ hour weeks with little time for other pursuits. Oregon State University (OSU) offers many excellent courses but they may not be presented in a way that works best for a diverse set of urban, market-oriented farmers and may be focused more on the techniques of farming rather than the business of farming. Community colleges are not currently focused on the regional food economy and have limited offerings in horticulture and biology.

> *"Education and package of crop marketing resources are opportunities to grow the regional food market. We need education on crop-income diversification strategies; systematic connecting to customers; and expanding sales of local food in big markets."*
>
> *"I could use some help with using financial and planning tools. Would love to sit down with someone who could show me how to use excel and other planning tools more effectively. Would like to have an integrated system for planning and recordkeeping that integrates orders, invoices and to be picked list and harvest record."*

Regulations and Requirements

Nearly 70% of survey respondents require supplemental income to remain economically viable. Regulation is identified as one of the biggest barriers to generating new markets, increasing revenues and reducing costs. Restrictions on-farm accessory uses such as agricultural tourism facilities, farm stands, parking lots, bed and breakfast facilities, integrated production facilities (e.g., organic fertilizers), urban farm residential developments (housing), and processing and sales facilities limit farmers' ability to make a living solely from their farm operations.

> *"I would like to conduct sustainable agriculture tours and have a farm restaurant, community kitchen, concert area and community garden on my property. Regulatory barriers are the issue."*

Transportation/Energy

Farmers who travel to reach their markets trek an average of 32.5 miles. This especially affects small growers who regularly attend multiple farmers markets. Several farmers indicate that

they travel to up to five farmers markets per week. There is no coordinated farm to market transportation system for small growers with diverse markets. This also is a key issue for growers in the climate change debate. Several analyses indicate that complex and multiple trips to market increase the greenhouses gases (GHG) produced by farm vehicles. Some studies indicate that small farmers with diverse crops have higher greenhouse gas production than mass production farmers who ship to the region from overseas.[40] Others such as a 2008 King County, WA study showed that locally produced food crops are responsible for less greenhouse gas production than imported crops.[41]

> *"It is difficult for me to travel to five to ten farmers markets every week. There has got to be a better way."*

Marketing

Farmers sell to a variety of markets, including CSAs, farmers markets, direct on-farm sales, restaurants, and wholesalers. They connect with their customers mostly in-person marketing or via the Internet through farm websites, shared websites (Food Hub, Local Harvest) and Facebook. Nearly all survey respondents indicate their target market is the Portland Metro Area. Thirty-nine percent of survey respondents say they need assistance with marketing and connecting with customers. Desired services include would like assistance with websites, marketing, advertising and farm membership systems.

> *"We need assistance with newspaper write-ups, advertising, and other ideas generated to connect with the consumer to let them know we exist and tell them about our value-added product and what makes it special."*

[40] The political economy of "local foods" in Eastern Kansas. Benjamin L. Champion , (2007). , DPhil, University of Oxford.

[41] Greenhouse Gas Emission and the Local Food System, Seattle-King County Food Policy Council, January 2008.

OPPORTUNITIES AND STRATEGIES

The following is a preliminary list of opportunities for overcoming the gaps, barriers and challenges identified in the previous section, as well as tools and strategies to strengthen the Portland metropolitan food economy. This section is divided into two parts. The first addresses overall economic strategies. The second addresses the resources growers need to be successful.

Economic

The following economic strategies have significant potential to increase the stability and economic return of farming in the urban influenced area of the Portland metropolitan region.

Export Expansion

Findings: Exports of food and food products will continue to be a major feature of the Oregon and regional food economy. State agricultural exports were estimated to be $1.5 billion in 2008 with the largest exports being wheat at $285 million, planting seeds at $280 million, fruits and preparations at $209 million, and vegetables and preparations at $133 million.[42]

Opportunity: Increase exports from small and medium farms through distributors such as Organically Grown Company, Aramark and other distributors.

Potential benefits: Increased income to the region and individual growers.

Potential Tools and Strategies: Regional producers and distributors will need to know which crops or processed products have most potential for export. An on-line target market data base is needed to detail the food products for export and the best ways to integrate them into distribution channels. New export distribution channels may be necessary.

Import Substitution

Findings: Import substitution is an economic development strategy with major potential for the regional foodshed economy (more information on pages 10-11).

Opportunity: The opportunity for the region is $4.7 billion if all food currently imported from outside the region was locally produced. A more realistic target would aim for 10 percent per decade for the next twenty years. This action would generate, at a minimum, $470 million in increased local economic activity assuming adequate capacity to increase production by that amount.

Potential Tools and Strategies: Regional growers need to know which products to target for production and processing that have a ready local market channel. An on-line target market data base is needed to detail food products for local consumption and define the best ways to integrate them into the distribution channels. The Ecotrust Food Hub (www.ecotrust.org/foodhub/) can be strengthened and physical food hub studies should be considered, such as the proposed James Beard Public Market in Portland.

[42] USDA Trade and Agriculture, What is at Stake for Oregon?, September 2009.

Processing

Findings: Value-added food products will continue to be a major feature of the regional food economy and the region has significant food processing expertise. Currently small scale processing locations such as USDA certified collective kitchens and small-medium meat processors do not appear to be adequate to the potential demand

Opportunity: Stimulate a regional infrastructure of small scale food processing facilities for small and medium growers to increase value of food produced in the region and potential for exports.

Potential Tools and Strategies: Develop a vision and action plan for a regional network of food processing facilities that serve small and medium sized growers based on global best practices.

Distribution

Findings: A major challenge for small growers is to bring their produce and other products to market efficiently. Small growers serving farmers' market and other markets of regional food may have as many as ten different delivery locations a week. In addition, small growers do not necessarily have the farm practices (for quality and timing) to gain access to larger West Coast and global markets through food distribution companies such as Provista and Organically Grown Company.

Opportunity: Develop a distribution cooperative that help growers access markets more systematically and efficiently. Provide a focus for growers to improve the energy and time efficiency of their distribution process, provide information on supply and demand for products, shared pick-up and drop-off sites, and other techniques to reduce the cost of distribution.

Potential Tools and Strategies: Develop a vision of a regional network for farm product distribution to serve small and medium sized growers based on best practices in other regions.

Consumption

Findings: The region currently consumes an estimated 1.5 percent regional farm sales.

Opportunity: If this amount was to increase to 20 percent of food regional food purchases this would put approximately 900 million per year into the regional food economy – if exports stayed steady. This would provide significant economic benefit to the regional growers and more healthy food for consumers.

Potential Tools and Strategies: Develop a specific import substitution strategy that builds on expansion of small and medium sized growers in the region and increases their access to markets. Among the key opportunities is the possibility of focusing on addressing the twin challenges in Oregon of obesity and hunger. This will need a cross-sector approach to economic development -- public, private, non-profit, philanthropic, institutional and communities of faith.

Regional Foodshed Cluster Development

Findings: At the current time the regional food economy is not a selected cluster for focus by regional economic development organizations, such as Greater Portland, Inc. and the Portland Development Commission. However, both Clackamas and Multnomah counties have made foodshed economic development important economic development goals. In addition, Metro and most local governments continue to focus on protection of prime productive farmland and not on the economic vitality of regional farming.

Opportunity: In order to maximize the potential and linkages within the regional foodshed economy regional public agencies need to identify the foodshed economic cluster as an economic development focus. Linkages among the elements of the food economic system need to more clearly understood.

Potential Tools and Strategies: Development of a foodshed economic cluster strategy and a regional civic ecology inventory, analysis, plan, and key performance indicators can help define current and potential linkages in the system to benefit producers, processors, distributors and consumers.

Civic Ecology Resources

Capital

Gaps/Barriers/Challenges: Farmers identify the need for capital sources as a primary need for farm improvement and expansion.

Opportunity: Innovative approaches to providing capital to growers and information on capital sources will allow expansion and diversification of the farm economy. Increased capital access will result in grower access to land, water, labor and specialized equipment.

Potential Tools and Strategies: Improve access to existing and potential financial resources and intermediaries. Potential approaches include: pension fund investments, agricultural development banks, agricultural venture funds, mutual funds, cooperative private placements, farmland trusts and cooperative forms of ownership. Technical assistance tools include education and training packages and on-line databases.

Land

Gaps/Barriers/Challenges: Many farmers would like to increase their land base but cannot due to a lack of capital, conflicts with neighbors, urban growth and related uncertainties, conflicting adjacent land uses.

Opportunity: Because the region has a large amount of productive land available for food production or more intensive production there are several land use opportunities. These include, where economically viable: transition crops from nursery stocks and Christmas trees to food on prime land, produce food on marginal land, use urban transition land for food production, use urban agriculture strategies in urban development, employment lands and open space, and provide for distributed production sites in urban and suburban areas.

Potential Tools and Strategies: Expanded right to farm statutes, change model local ordinances, urban farming ordinances and plans for distributed site farming in the urban and suburban land uses.

Water

Gaps/Barriers/Challenges: Water is a critical factor in production and farmers often do not control sufficient water sources to meet their needs.

Opportunity: The region is seen as water rich. Focusing on efficient (lower) and effective (multiple benefits) water use is a key opportunity to expand regional foodshed agriculture.

Potential Tools and Strategies: A total water cycle plan for regional agriculture would provide a comprehensive analysis of supply and demand and how efficiency and effectiveness strategies can provide more water for the foodshed. Plan elements would include all water sources (rain, surface, well, surface and stream water), storage, distribution, consumption and reuse (wastewater treatment systems). For example, Oregon receives rain seasonally in the winter and spring, while the prime growing season in summer and early fall is usually dry. Harvesting and storing rainwater can increase water available to growers.

Labor

Gaps/Barriers/Challenges: Labor issues include inspections, hygiene and safety, workers compensation and unemployment claims, access to/provision of affordable housing, documentation and the future of guest worker programs.

Opportunity: Develop tools to provide a more stable, educated and trained labor force.

Potential Tools and Strategies: Training packages for existing workers especially in safety and hygiene. Expanding of the guest worker program. Support development of safe and sanitary housing communities on farms and in agricultural communities as well as programs that focus on the health and educational needs of children.[43] In addition, there may also be a need to examine the role way labor inspections are conducted.

Education and Management

Gaps/Barriers/Challenges: Many farmers are unable to access farm business education services, including business planning, management, marketing and finance. Currently there are few academic programs focused on urban foodshed agriculture, business operations and the special needs of these growers.

Opportunity: Develop a linked set of programs tailored to the needs of the emerging metropolitan farm economy.

Potential Tools and Strategies: Oregon State and Portland State Universities could work with one or more of the region's three community college systems to develop a set of linked

[43] The Farmworkers Housing Development Corporation in Woodburn develops housing communities with support services for farm workers, community gardens, education and training programs. Their work has resulted in a 90 percent high school graduation rate for students living in their communities. There are opportunities for growers to partner with FHDC and other effective organizations to create on-farm and local communities for farmworkers and to develop related farm ownership succession and economic opportunity strategies.

programs or courses to meet the needs of the regional foodshed growers. Ideally, there would be an integrated on-line and course work curriculum available for different types of growers.

Regulations and Requirements

Gaps/Barriers/Challenges: Most farms require supplemental income to remain economically viable. Regulation is identified as one of the biggest barriers to generating new diverse on farmer and related income streams.

Opportunity: While maintaining a strong land use protections for farmland there are opportunities to change land use laws and regulations to accommodate a greater range of grower supplemental income opportunities.

Potential Tools and Strategies: Develop a model farm economy land use planning and regulatory framework designed to strengthen farm-related income and farm viability addressing accessory uses, farm stands, agri-tourism, direct sales, u-pick, fertilizer production, events and other potential sources of income. Farm-related building regulations may need to be modified to accommodate four-season growing structures such as large scale greenhouses.

Transportation

Gaps/Barriers/Challenges: Farmers who travel to reach their markets travel an average of 32.5 miles. There is no coordinated farm to market transportation system for small growers with diverse markets.

Opportunity: There appears to be an opportunity to reduce costs to growers and reduce GHG production from farm-to-market trips.

Potential Tools and Strategies: Several strategies should be considered. A cooperative transportation system that would be designed specifically to reduce the cost and greenhouse gas (GHG) impacts of farm to market trips. Another approach would be to develop a self-managed and web based system, possibly through the Ecotrust Food Hub, to allow growers to share transportation to market. Another possibility is transportable processing services, such as mobile slaughterhouses.

Energy

Gaps/Barriers/Challenges: Growers use a significant amount of energy in the form of motor fuels, electricity and natural gas and these supplies are getting more expensive over time.

Opportunity: There appears to be opportunities for growers to conserve energy and substitute bio fuels, small-scale hydro, solar and wind energy for current non-renewable supplies.

Potential Tools and Strategies: Several strategies should be considered. On farm energy conservation and renewable production strategies should become a focus on innovation by Cooperative Extension and the Soil Conservation Districts. At this point in time demonstration and prototype development can produce replicable projects. Adjoining growers might also work together in an Agricultural Energy District (like an urban ecodistrict) to share costs and benefits of larger scale renewable systems.

Marketing

Gaps/Barriers/Challenges: Many farmers would like marketing support, such as assistance with websites, marketing, advertising and farm membership systems.

Opportunity: Increase marketing capacity through education and regional branding.

Potential Tools and Strategies: Develop a marketing educational and low cost consulting or peer-to-peer service for growers to build their marketing capability. Develop a regional brand so consumers can determine local sourcing.

Ownership/Succession Management

Gaps/Barriers/Challenges: Many farmers plan to transfer land/farm ownership but do not have land/farm transference plans formalized in a legal document.

Opportunity: Provide easy access to information and educational programs on alternatives for succession planning and related legal and financial tools.

Potential Tools and Strategies: Develop on-line and educational courses and a handbook on succession planning including relatives, employees (including farm labor), cooperatives, land trusts, bank trusts, institutional ownership, public agencies and other ownerships.

PHASE 2

In Phase 2, we will develop the tools needed to strengthen the Portland metropolitan food economy. They will build on the opportunities and strategies necessary to overcome the gaps, barriers and challenges identified in Phase 1. The toolkit will include methods for marketing and stimulating local demand for and supply of locally produced food; land use tools to encourage and support farms near urban areas; and operational tools that will assist farmers in taking advantage of their proximity to population centers while mitigating the negative effects of their location.

We will test the tools using representative farming operations in the City of Damascus as case studies. Farmers will evaluate the tool kit for its potential to addresses economic, environmental and community sustainability goals. Local planners will test the potential usefulness of regulatory tools, including flexible land use regulations. Consumers will evaluate tools designed to stimulate the supply of and demand for local food.

APPENDIX A. DEFINITION OF THE PORTLAND METROPOLITAN FOODSHED

APPENDIX B. DEFINE SUSTAINABILITY FOR THE FOODSHED

APPENDIX C. LITERATURE REVIEW: MAJOR TRENDS, CASE STUDIES AND KEY ISSUES

APPENDIX D. PORTLAND REGION FOOD SYSTEM ECONOMIC PROFILE

APPENDIX E. CORE FARMER GROUP INTERVIEWS

APPENDIX F. FARMER SURVEYS

APPENDIX A
DEFINITION OF THE PORTLAND METROPOLITAN FOODSHED
MARCH 23, 2011

DEFINITION OF THE PORTLAND METROPOLITAN FOODSHED

Defining a foodshed is as simple and complex as answering the question "where does our food come from?" More technically, a foodshed may be defined as the geographic area within which the food for a specific population originates, as well as a mechanism for understanding the systems in place that drive the flow of that food supply.[1]

There are many productive types of land in the Pacific Northwest—from the hazelnuts, wine, pears, goats and apples grown in the fertile Willamette Valley to wheat grown in eastern Oregon and Washington. However, the food that we eat may come from a backyard in Portland, Multnomah County, Oregon, or it may travel from California or Brazil.

As our region imports and exports food to/from the rest of the region, country and internationally, these places are part of our foodshed. If we follow the flow of this food supply at various scales, we see that food grown on mini and small local farms may be processed, eaten, disposed of and repurposed locally or regionally. Alternatively, food grown internationally on large, commercial farms may be processed at large-scale processing facilities and shipped to other location prior to consumption. These two variations of our foodshed economy have significant impacts on local farm viability and distribution of economic benefits.

Thus, the scale of our foodshed from smallest to largest includes:

1. Local
    - Yard
    - Block
    - Neighborhood
    - City
    - County
2. Regional
    - Portland, OR-WA Census Standard Metropolitan Statistical Area (SMSA), which includes Multnomah, Clackamas and Washington counties in Oregon and Clark County, Washington
    - Willamette Valley from Portland to the headwaters of the Willamette and from the Cascade to the Coastal mountains
    - State of Oregon: Oregon has three district growing areas, the Oregon coast, the Willamette Valley, and Eastern and Southern Oregon.[2]
    - Columbia Basin, including much of Oregon, Washington, and Idaho and parts of Montana, Wyoming and Canada
    - West coast (Oregon, Washington ,California, British Columbia)
3. United States

[1] Blum-Evitts, Shemariah, *Designing a Foodshed Assessment Model: Guidance for Local and Regional Planners in Understanding Local Farm Capacity in comparison to local food needs,* Master's Thesis, May, 2009

[2] USDA Agricultural Statistics (from 2002 Census of Agriculture), www.agclassroom.org/kids/stats/oregon.pdf, accessed 10/27/2010

4. Mexico and Canada (North American Free Trade Agreement)
5. All other countries

While our local and regional foodshed does include flows of supply and demand at all the above scales, this report is designed to assess and quantify the situation, benefits, needs and challenges for small producers in the Portland Metropolitan Foodshed, and to provide strategies for producers, consumers and government officials to find common ground for creating a partnership for a sustainable future for the region. Therefore, for the purposes of this report, the Portland Metropolitan Foodshed is defined geographically as Columbia, Clackamas, Multnomah, Washington, and Yamhill Counties(Clark County, WA is not included in this study) and the systems that drive the flow of the food supply between Producers, Processors, Distributors and Eaters (final consumers of food). A detailed description of these components follows.

Producers (Growers)
For the purposes of this report, Portland Metropolitan Foodshed producers are defined as the places and their owners that grow food, or the different types of land on which food is grown within the Willamette Valley. From the smallest to the largest scale, these include: yards, community gardens, planting strips/medians, nature/in the wild, rural residence farms, intermediate farms, and commercial farms.

- *Yards* include land attached to single- or multi-family residences, where people raise and tend vegetables, chickens, goats, orchards or other edible items.
- *Community gardens* are shared growing locations spread throughout the region, usually operating at the neighborhood level. These sites have a fixed number of garden plots that are reserved and/or paid for, tended and harvested by individuals/households.
- Public *planting strips, medians, and other small spaces* often have edible plants growing in them, such as fruit trees or greens.
- *Nature/the wild* includes places where food, such as mushrooms, greens, other edible plants and deer, may be foraged, harvested or hunted in natural and wilderness areas in the region.
- *Farms*[3]. In the past, ERS frequently used $50,000 in agricultural sales as the delineation between large and small farms. "Noncommercial" or small farms had sales less than $50,000, while "commercial" or large farms had sales of $50,000 or more. To some extent, the cutoff between small and large farms is arbitrary, and cutoffs other than $50,000 are also used. The National Commission on Small Farms, for example, used a much higher cutoff in its definition of small farms: farms with sales less than $250,000. The Commission wanted to include more farm families of relatively modest means who may need to improve their net farm incomes. ERS has created a farm typology, with eight groups, which incorporates the Commission's $250,000 cutoff.

  The Economic Research Service (ERS) has developed a farm classification to divide U.S. farms into eight groups. The farm typology focuses on "family farms," or farms organized as proprietorships, partnerships, and family corporations that are not

[3] USDA Economic Research Service Glossary, Farm Typology, http://www.ers.usda.gov/briefing/farmstructure/glossary.htm#typology, accessed 11.12.10

operated by a hired manager. To be complete, however, it also includes nonfamily farms. A collapsed farm typology combines the eight groups into the following three categories: *rural residence farms, intermediate farms* and *commercial farms.*

1. *Rural residence farms.* Specific typologies included in rural residence farms are *limited-resource, retirement, and residential lifestyle farms.*
    a. *Limited-resource farms.* Small farms with sales less than $100,000 in 2003 and low operator household income in 2003 and 2004. Household income is low if it is less than the poverty level in both 2003 and 2004 or if it is less than half the county median income both years.
    b. *Retirement farms.* Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).
    c. *Residential/lifestyle farms.* Small farms whose operators report they had a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).
2. *Intermediate farms.* Includes *farming occupation/lower-sales* and *farming occupation/higher-sales* farms.
    a. *Farming occupation/low-sales.* Small farms with sales less than $100,000 whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).
    b. *Farming occupation/high-sales*. Small farms with sales between $100,000 and $249,999 whose operators report farming as their major occupation.
3. *Commercial farms.* Includes *large, very large, and nonfamily* farms.
    c. *Large family farms.* Farms with sales between $250,000 and $499,999.
    d. *Very large family farms.* Farms with sales of $500,000 or more.
    e. *Nonfamily farms*. Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Processors

Processors are defined as the methods and facilities where raw foods and byproducts are processed and packaged for distribution. From smallest to largest, these include individual processors, shared facilities/equipment, mobile processors, small-scale processors, large processors, and byproduct processing facilities.

- *Individual processors* are individuals or small groups/clubs that process and package food and byproducts for their own consumption through canning, baking, freezing, pickling or other methods. Individuals also process food packaging and other food byproducts by reusing/recycling them in do-it-yourself projects like making a grocery bag or sewing a skirt from discarded plastic food containers. Due to the requirement of having a health-department-approved commercial kitchen to process commercial foods, *individual processors* do not include sole proprietors that process food for sale.
- *Shared facilities/equipment.* There are many small or tiny businesses, such as food carts or sole-proprietor caterers/bakers that do not produce or sell enough to justify owning, operating and maintaining an entire commercial kitchen and/or its associated

equipment (large mixers, freezers, ovens, etc.). [Especially in the current economy, it has become more economically viable for some small and tiny businesses to open and operate at this scale, thus giving rise to a prevalence of utilizing s*hared facilities and equipment.* An example of this phenomenon is local Black Sheep Bakery, which rents out days, hours and/or equipment in its health-department approved commercial kitchen to an ice cream cart, an all-hours bicycle-delivered pizza company, and a tiny, wholesale cookie company.] Given the example of food carts—of which there are over 600 and counting in the City of Portland alone[4]—sharing equipment and facilities has become a vital part of the Portland Metropolitan Foodshed.

- *Mobile Processors*. Similar to *shared facilities and equipment* in stationary commercial kitchens*, mobile processors*, such as mobile butchers, have cropped up in several places to provide a means for small farms to process their meat and fiber products to health department standards. At this small scale, items made using *shared facilities, equipment* and *mobile processors* are most often made to be sold and consumed at the local/regional scale.
- *Small-scale processors* also process items for local/regional sale and consumption; however, they are large enough businesses to justify operating their own facilities. Examples include the neighborhood butcher, an in-restaurant salumeria, micro- or nano-breweries, coffee roasting companies and small distilleries and wineries. These are small, commercial kitchens or processing facilities dedicated to producing products for wholesale distribution or an attached/associated storefront, e.g. pints of ice cream, or baked goods.
- *Large processors* are factory facilities that process and package large quantities of foods to be distributed and eaten at the local, regional, national and international scales and are designed to withstand long-distance travel (import/export).
- *Byproduct processing facilities.* Each part of the foodshed system produces byproducts that must be disposed of or repurposed. At the smallest scale, individuals may repurpose or compost their own byproducts; however, larger amounts of byproducts require processing facilities such as landfills and composting, recycling or biofuel production sites.

Distributors

Distributors are defined as the various delivery methods by which food gets to eaters (described below.) Distributors include: food clubs; community supported agriculture operations (CSAs); farm stands; farmer's markets; corner groceries; gleaners; restaurants; catering, regional markets; supermarkets; and commercial wholesale distributors.

- *Food clubs*, such as milk or meat clubs, are becoming popular. These clubs allow a large group of people to "buy-in" to purchasing an entire cow or a large amount of raw milk directly from farmers, then processing and divvying up the purchase amongst the group. Another type of food club is the *supper/dinner club*, which offers intimate many-course meals prepared by local chefs, usually using local food.
- *Gleaners,* such as the Portland Fruit Tree Project and Oregon Food Pantry cull uneaten food from producers, processors and distributors and from public lands, e.g. medians, to

[4] Rogers, Kelly and Kelley Roy, Cartopia: Portland's Food Cart Revolution, Roy Rogers Press, October 2010.

distribute to needy populations and/or to individuals that preserve food for their own use that would normally go to waste.

- *FoodBanks,* such as the Oregon Food Bank and food kitchens that distribute food to eaters from various sources including donations and purchases.
- *Community Supported Agriculture Operations*, or CSAs, are businesses set up to provide *individuals/households* with the opportunity to buy a "share" in a *rural residence* or *intermediate farm* that grows food. The *individual/household* buys the share at the beginning of a season and is then provided with a box of produce or processed meats/cheese/eggs at predefined intervals. The size of the box (number of people it is meant to feed), frequency of delivery/pickup and length of the season determine the price of the share. This model allows farmers to receive funding at the beginning of their growing season when they need it most to purchase materials and equipment, rather than waiting until the harvest season to sell their products. As most CSAs also require a certain number of volunteer hours with the purchase of a share, the business also gets some free help from its shareholders at the busiest times of the season.
- *Farm Stands* are stands set up on the farm property, with the purpose of selling food on-site, year-round or by the season, depending on the zoning regulations where the stand is located. With the explosion in mobile businesses, e.g. food carts, other mobile stores also are gaining ground, for example, *mobile farm stands/produce carts*. A few of these have begun surfacing around the region.
- *Farmers Markets* are stationary markets that operate during the harvest season at the neighborhood level. These markets sell spaces to vendors on a weekly basis (or at whatever frequency the market operates). These vendor stalls allow farmers, sole proprietors and small food carts or food stalls to sell fresh produce, processed foods, such as cheese, meat and jams, and prepared meals, such as tacos, coffee drinks or Thai food.
- *Corner Groceries and small co-ops* are small grocery stores, such as butcher shops, ethnic markets, cooperatives and convenience stores that sell specific items with wide convenience demand at a very small scale. Some of these corner groceries are specialty-shops, selling unique artisan products. Some are also owned by large global brands (e.g., 7-11 stores).
- *Regional Markets* include larger grocery stores that are focused specifically on buying and selling local and regional food, such as Food Front and New Seasons Market.
- *Supermarkets* are large, chain grocery stores that make up the bulk of where people buy their food. These stores most often purchase their inventory from large, commercial distributors who buy from large processing facilities and commercial farms. Often, ownership of the market and the farms and processing facilities are located outside the local region.
- The term *restaurant* is used loosely here to describe the umbrella that includes all the types of commercial eating and drinking establishments that buy and sell food to individual eaters in a group setting. Examples include taverns, pubs, bars, wine bars, coffee shops, food carts and fast food.
- *Catering* is another way that food products find their way from farms and processors to eaters. Caterers feed individual eaters at events in a similar manner as restaurants;

however these events happen on a different scale and manner than the typical restaurant. See below for more on events.

- *Commercial Wholesale Distributors* deliver food via airplane, train, truck, car and bicycle from farms and processors to restaurants, supermarkets, regional markets and corner groceries.

Consumers (Eaters)
Consumers ingest and utilize food and its byproducts made by producers and processors at all scales and delivered by the various distribution methods described above. Consumers include: individuals/households; the landscape; institutions; animals; fuel-based machines; and events.

- *Individuals/households* are individuals or families that eat food produced in the foodshed.
- The *landscape* is an eater and a *producer.* As an eater, the landscape utilizes byproducts of the foodshed to nourish soil, air and water.
- *Institutions,* such as hospitals, schools and jails purchase fresh produce and processed foods that feed large numbers of individuals. The large scale of an institution means that decisions about where their food is sourced from can greatly impact an entire foodshed by providing a constant market for certain food products.
- *Animals* eat food and use bedding materials grown and processed at various scales.
- *Fuel-based machines* include cars, power plants, home heating systems and other machines that can use fuel produced by food crops and byproducts.
- *Events* are similar to restaurants and institutions in some ways and not in others. An event may be as small as a catered party or as big as a wedding, corporate event or race, such as the Brewer's Festival, Rose Festival, or Portland Marathon. Events that occur on the larger scale have unique attributes that restaurants do not, as well as carry a similar level of power as institutions to influence the foodshed economy.

This section will be refined and graphically illustrated once we have some agreement on the overall concept of the Foodshed Economy.

FOOD SUPPLY FLOWS
The following "food system model" graphic adapted from the San Francisco Food Alliance's 2005 San Francisco Food System Assessment[5] illustrates the high-level flows of inputs and outputs between Portland Metropolitan Foodshed producers, processors, distributors and consumers.

[5] San Francisco Food Alliance, *2005 Collaborative Food System Assessment,* http://www.sffoodsystems.org/pdf/FSA-online.pdf

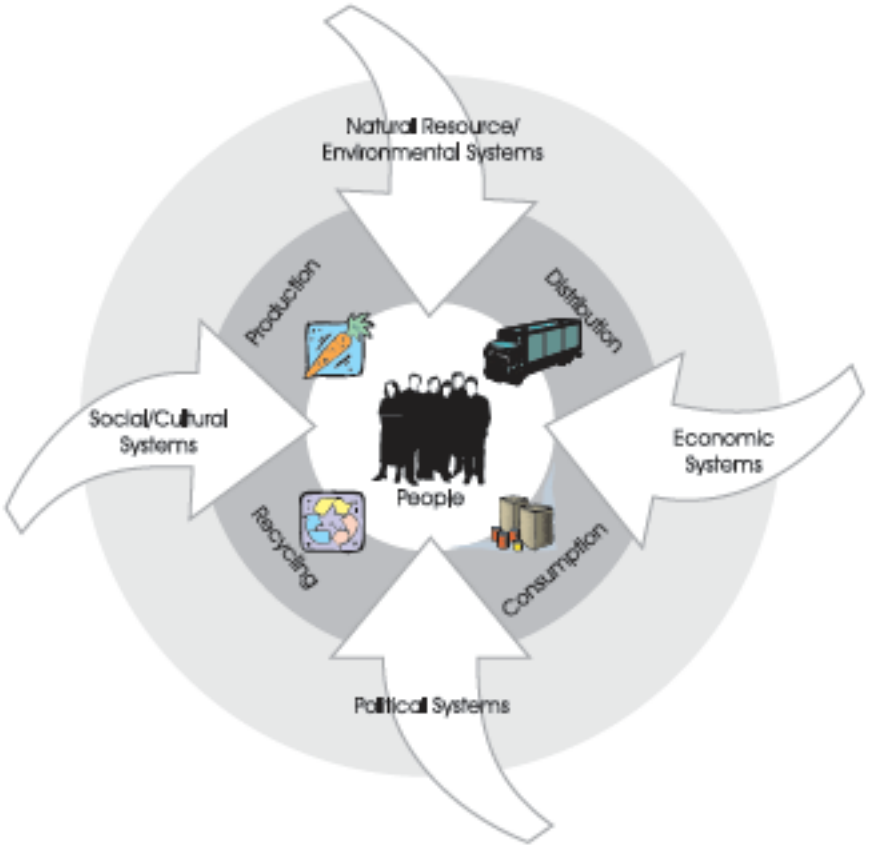


Figure 4: "The Food System Model."
Source: Adapted from San Francisco Food Alliance, *2005 San Francisco Collaborative Food System Assessment.*

For example, if we focus on the farmer's market example, food grown on rural residence, intermediate farms and in the wild go directly to the farmer's market as produce, such as apples, mushrooms and corn, while food from these producers also arrives at the market via small processing facilities, mobile processors or shared commercial kitchens/equipment in processed forms like jams, butchered meats and baked goods. Finally, food sold at farmer's markets is bought directly by individual eaters, as well as by restaurants and caterers, who then serve the food to individual eaters and events.

Each point in the journey food takes from producer to eater creates byproducts that can be repurposed. Food that isn't sold can be donated to gleaners, such as the Oregon Food Pantry or homeless shelters at reduced cost to be eaten by under privileged individuals. Inedible foods may be composted, and used packaging may be composted or recycled. Processed byproducts can be used to supplement productive land, used as bedding for livestock and reused as food packaging.

There are many more important parts of the foodshed economy that don't fit easily into the above categories. For example, each part of the foodshed system includes workers and suppliers (e.g., tools and implements) which are integral parts of the local food-based economy.

How should this project approach/handle the analysis of these important aspects of the Portland Metropolitan foodshed economy?

For the purposes of this paper, the following are not covered:

- Ecotourism, such as Corn Maize/Pumpkin Patch, farm stays, and winery/brewery tours.
- Education and training for farmers/growers, food preparation/processing/cooking
- Farm/restaurant/processing non-food suppliers
- Sources of capital for the foodshed.

APPENDIX B
SARE - PORTLAND METROPOLITAN FOODSHED STUDY
LITERATURE REVIEW PART I
APPROACH, BACKGROUND, AND KEY ISSUES
MAY 27, 2011

Purpose

The purpose of this initial literature review is to:

1. **Approaches and Policy Frameworks.** Identify approaches to economic analyses of local and regional foodsheds and identify key policy frameworks as well as case study examples.
2. **International, National and Portland Metro Area Case Studies.** Find national and Portland Metro area information collected to date on metropolitan foodsheds and identify data gaps.
3. **Barriers and Opportunities.** Identify key issues, barriers and opportunities faced by farmers and producers (in urban/urbanizing areas) strengthening the metropolitan foodshed economy.

Executive Summary

A summary of the Approaches and Policy Frameworks, Case Studies and Barriers and Opportunities sections of the literature review follows.

Approaches and Policy Frameworks

This section summarizes eight studies that serve as a framework for how to approach an economic assessment of metropolitan agriculture. These studies cover the global context for assessing the metropolitan foodshed economy, examine the case for local, sustainable agriculture and show several examples of foodshed assessment methodologies.

Major findings include:

- Rising fuel costs, climate change, replacing food crops with biofuels, increased meat consumption and politics are all contributing to the rising cost of food all over the world.
- Rapid urbanization creates vast numbers of new consumers, often poor, who require affordable food.
- Approximately 840 million people suffer from chronic hunger and 2 billion suffer from macronutrient deficiencies.
- There are many major threats and disruptions to food security all over the world.
- The distance between consumer and producer continues to increase, while energy costs and GHG emissions also increase.
- Metropolitan regions have an opportunity to develop community-based agricultural economic development.
- Industrialization has led to efficiencies in agricultural production, as well as degraded farmland, concurrent reduction in rural vitality and decreased access to healthy, local food.

- The most direct way that expansion in local food systems could benefit local economies is through import substitution.
- Economic multipliers show that buying local food has a significant, positive impact on the local economy.
- There is a renewed relevance of smaller, integrated economic systems and supply chains in a global age, in particular appreciation of quality construction, production and service.
- Increasing food security may require: knowing where our food comes from and where it might come from; changing our consumption patterns to prioritize foods that require less land and energy to produce; measuring the potential for local foods to reduce energy use and GHG emissions; tracking different "costs" of producing and transporting foods; and estimating the capacity for population centers to supply more of their food locally.
- Urban agriculture is one way for cities to address the costly challenges of vacant land.
- There is no generally accepted definition of "local" food, although local food markets include direct-to-consumer sales, farmers' markets, community supported agriculture operations (CSAs), farm-to-school programs, institutional purchases and local/regional markets.
- Direct-to-consumer, farmers' market, CSA, and farm-to-school program sales all have risen dramatically over the last ten years.
- Organic production and consumption continue rapid growth.
- There is growing government support for local food, although federal policy supports commodity production.
- Some consumers will pay a premium for local food.

Case Studies

National/International

This section summarizes eight example metropolitan foodshed market analyses from various cities and counties in the United States and Canada. Jurisdictions covered include: the State of Oregon; Lane County, OR; Sacramento, San Francisco, and Oakland, California; Vancouver, BC, Canada; the Delaware Valley region around Philadelphia, Pennsylvania; the State of Ohio; North Carolina; and Treasure Valley, Idaho.

Major findings of these case studies include:

- There are several national sources of data available to assess food systems/markets, e.g. Bureau of Labor Statistics, Census of Agriculture, Oregon Employment Department, and Oregon Agricultural Information Network.
- Other sources include private data (grocery stores), interviews, and surveys.
- Parts of the food system most often studied include growers, processors, land, retail/restaurants, distribution/transportation, agri-tourism, policy/land use, waste recovery and consumers.
- Most metropolitan foodshed areas import many millions of dollars in food every year.
- In most cases, demand for food exceeds the local supply.
- There is a growing interest in locally and sustainably grown foods across the U.S.
- Oregon residents value locally grown food and local farmers.
- Demand for growing food is increasing, while demand for nursery products is declining along with the collapse of the housing market.
- Most farmers do not make enough money farming to make a living, and many hold second jobs.

- The high price of land and inheritance laws can be prohibitive for entry by new farmers.
- Agri-tourism has a great deal of potential for increasing the economic viability of farming.
- The prevalence of cheap, unhealthy food is a major threat to consumer health and the economic viability of farmers.
- There are a variety of ways to encourage residents to change their behavior and buy local and/or sustainably grown and processed food.
- Clusters of community-based food businesses create jobs, but do even more; they create collaborative groups of new business owners.
- The key "lever" driving change in some emerging food systems is commerce based on relationships of mutual trust, through clusters of firms that grow in concert with each other to create both resilience and stability.
- Oregon is one of the strongest agricultural states in the nation in terms of length of growing season, quality of agricultural soils, and the diversity and quantity of food crops that are produced. However, at the same time, our state currently ranks second among all states for the number of people who are forced to skip or reduce the size of their meals because they cannot afford enough food (*termed very low food security).*
- A 2005 USDA study showed that small Oregon farming operations or adaptive farms tend to have average gross sales per acre that are about twice as high as the overall average.
- For the same small farms, the average age of the Oregon operator is lower than for farmers in general, and the number of off-farm work days declines over time.
- While Oregon's land use laws have protected agricultural acreage, they may also have constrained the development of adaptive farms and agricultural tourism.
- Between 2002 and 2007, the number of Oregon farms in organic production raised from 515 to 933 and from 1.3% of total farms to 2.4%.
- In 2007, 470 farms with 16,175 acres were converted to organic production in Oregon
- Between 2002 and 2007, the market value of Oregon's organic farm sales rose from about $9.9 million to $88.4 million, or from 0.3% of total farm sales to 1.9%.
- As of 2007, over 75% of the total acreage (over 12 million acres) in Oregon was dedicated to food production.
- The USDA has initiated a "know your farmer, know your food" campaign educating people about buying local and supporting farmers' efforts to build personal relationships with their customers.
- In 2005, Oregon nursery crops, bulbs, greenhouse crops, and turf were 19.1 percent of the total, but by 2009 they had declined to 15.4 percent.
- Oregon grains were 4.9 percent in 2005 and increased to 7.3 percent in 2009.
- Oregon's dairy products sector continues to increase its share of the total, from 8.4 percent in 2005 to 9.5 percent in 2009.
- Rural Oregon has been hardest hit, with several counties—including Crook, Douglas, Jefferson, Harney and Grant—all above 15% in 2010.
- According to the Oregon Farm Bureau, three quarters of what is produced in Oregon is exported to other states and overseas with ¼ sold in Oregon.
- Oregon has less industrialized agriculture than other states because of the diversity of farm products, size of farms, with high production of specialty crops, such as fruits, vegetables, tree nuts, dried fruits and nursery crops.
- Oregon has a strong base of multi-generational, family farms and emerging farmers, such as immigrants and a younger generation with a renewed interest in farming.

- There is an opportunity to develop Oregon's regional food infrastructure for storage, processing, marketing and distribution that supports the community food system movement, especially for small and mid-sized growers.

Portland Metro Area

There are 13 food system analysis case studies from the Portland metropolitan region summarized in this section. Topics/sources include:

- Clark County, WA
- Multnomah Food Action Plan/Multnomah County Office of Sustainability
- Bi-state Portland Metro region/Institute of Portland Metropolitan Studies
- The City of Damascus/Lynn Weigand
- Willamette Valley/Giombolini, Katy J. et al
- Clackamas County agriculture/County Soil and Water Conservation District
- Clackamas County institutional purchasing/Workforce Investment Council of Clackamas County
- Agriculture and natural resources economy/Clackamas County
- Commercial viability of Metro region agricultural lands/Oregon Department of Agriculture
- Food systems (Portland Plan Food Systems Background and Final Reports)/City of Portland
- Farmers markets/City of Portland
- Urban agriculture/Portland/Multnomah Food Policy Council

Major findings of these studies include:

- There is a wealth of existing data and example frameworks for assessing the Portland metropolitan foodshed economy.
- Major topics most commonly studied include:
  - Farmers market characteristics and sales.
  - Institutional purchasing.
  - Land.
  - Crop types and sales.
  - Food processing.
  - Characteristics of growers and other human capital.
  - Food waste
  - Water, land use, food security, policy and energy issues.
  - Consumer choices and health.
  - Demand for local food.
  - Marketing.
  - Urban agriculture.
- Portland metropolitan agriculture is a major economic engine.
- Portland metropolitan residents, organizations and governments value agriculture and locally-grown food.
- Agri-tourism is popular and has more potential, e.g. Sauvie Island Corn Maize.
- There are significant land use, policy, economic and other barriers to the long-term success of local growers.
- In a few specific areas, demand exceeds capacity for opportunities to buy and grow local food in the Portland metropolitan region. For example:

    - Waiting lists for community supported agriculture operations are 100% of the current capacity (2010).
    - There are over 1,300 people on the waiting list for plots in City of Portland community gardens.
- Many local governments and institutions are exploring opportunities to buy local food products.
- Gaps in the available data include:
    - Total regional imports and exports.
    - Economic multipliers for various parts of the Portland metropolitan foodshed economy.
    - Detailed needs and issues faced by local growers.
    - Gaps between jurisdictions and counties, e.g. some have assessed food processing, while others have not.
    - Types and certifications for sustainable farming methods used in local agriculture.
    - The economic impact/opportunity of food waste.

Barriers and Opportunities

This section summarizes seven studies that explore barriers and opportunities to the success of metropolitan agriculture, and in particular the success of growers. Several of the studies are also cited in previous sections.

Key challenges to consider:

- Barriers to local food-market entry and expansion.
- Linkages between growers and local markets.
- Limited processing and storage capacity.
- Methods to mitigate risk.
- Institutional and grocery store requirements.
- Threats to agricultural success include limited supply and affordability of land.
- Age profile of farmers and interest of heirs.
- Protection of farmland and the right to farm.
- Zoning and land use regulations.
- Water availability and quality.
- Inheritance laws.
- Education and training for farmers and employees, including marketing.
- Availability of experienced and well-trained labor force.
- Obstacles to the general practice of urban agriculture include: site-related, government-related, procedure-related, perception-related.

Summary of Sources

Approaches and Policy Frameworks

Severson, Kim, April 23, 2011. ***Behind the Rising Cost of Food*****, New York Times,** ***http://www.nytimes.com/2011/04/24/weekinreview/24food.html***

This article explores the continuing rise in the cost of food over the last year. As culprits, the article cites rising fuel costs, climate change, replacing food crops with biofuels, changes in how the world eats (increasing demand) and politics.

Key findings include:

- When Laurent Gbagbo tried to hold onto his presidency, his rival cut off export of the cocoa crop and prices in the United States hit a 32-year high.
- Hershey's has raised the cost of its products by 10%.
- Drought, possibly the result of climate change, is limiting the supply of coffee beans.
- Wholesale food prices rose 3.9% in February of 2011, the largest one month increase on record since 1974.
- Demand for food is driving prices up, e.g. the cost of food worldwide rose 37% from February, 2010 to this year (United Nations).
- The cost of meat is 17% higher this year than in 2010.

***Summit Report: First Global Summit on Metropolitan Agriculture,* Rotterdam, Netherlands, September 28-30, 2010**

This report summarizes the findings of the Global Summit on Metropolitan Agriculture, put on by the Metropolitan Agriculture Innoversity. About 18 months before the summit, the Metropolitan Agriculture Innoversity was conceived by TransForum and Reos to be a new action-learning network dedicated to initiating the processes necessary to create meaningful change in the agricultural and food sectors. Its stated objective was to provide a forum for knowledge-sharing and co-creating the Metropolitan Agriculture vision and practice around the world. It would deliver three sets of results at both the global and the local levels--initiatives, capacity-building and relationships. The summit brought together multi-stakeholder teams, including participants from agro-industry, governments, knowledge institutes and societal groups from six different global countries to talk about metropolitan agriculture.

The global context leading to the summit includes:

- In 2007, the UN famously announced that within the year half of the world's population would live in urban areas (UNFPA 2007).
- The majority of today's population increase takes place in cities; particularly in the global South, which the UN estimates will account for 93% of all urban population growth over the next four decades (ibid).
- Rapid urbanization creates vast numbers of new consumers, often poor, who require affordable food.
- Changes in consumption patterns in rapidly developing countries such as China, where more people are eating high protein meat and dairy products, can damage ecosystems and strain supplies of staple foods.
- Middle class consumers in cities in the West continue to demand high quality food, while at the same time economic downturn has resulted in growing numbers of malnourished people, high unemployment and urban out-migration.
- Cities have fewer green spaces as competition for space and resources increases.
- Pollution creates environmental health risks for many city dwellers face shortages in basic services such as electricity, health and transportation as demand outpaces supply.
- At the same time, cities depend on a globalized food system that has removed agriculture from metropolitan space, also increasing their vulnerability to economic and environmental crises.
- Technological advances in storage and transportation allow food consumed in urban areas to be produced on the other side of the planet. This, combined with high yield crops and intensive production processes, has increased the distance between consumer and producer.

- Most of these industrial production processes rely on high-input, chemically-based cultivation techniques that deplete soils. This leaves long-term yields in question as ecosystems and resources undergo severe strain. Global economic shocks can rapidly increase food prices, which disproportionately impact poor urban consumers, and globalized supply chains rely on cheap oil to get products from place to place.
- Climate change has the potential to affect cities worldwide, from sea rise and salinisation of the water table in coastal cities to significant localized climate shifts in all other areas, while also posing problems for the global food supply (Simon and Gueye 2009).
- A recent report on the Nile delta, where the city of Alexandria is located, reports that 60% of Egypt's food supply is under threat, and wheat and maize yields could be down 40% and 50% respectively in the next 30 years.
- On a global level, agriculture must aim for dramatic increases in efficiency, less intensive resource use and a reduction in external inputs. Cities possess the knowledge, infrastructure and influence necessary to act as a catalyst for these changes.

Key topics discussed at the summit include:

- The Potential of Metro Ag for Food Security—hosted by Dr. Rudy Rabbinge, Wageningen University, Netherlands and Florian Kroll, food security and environmental researcher and consultant, South Africa (Coffee Fabriek, Stage Area).
- Business Models for Linking Smaller Producers to Metropolitan Markets — hosted by Dan Carmody, Detroit Eastern Market, USA (Arabica Room) and Jan Kees Vis, Unilever, Netherlands (Havana Room).
- The Role of Reflective Learning in Practical Metro Ag Innovation Projects —hosted by Dr. Chris Peterson, Michigan State University, USA.
- Business Models for Sustainable Intenstification—hosted by Dr. Peter Smeets, Wageningen University, Netherlands (Virginia Room).
- Financing Metro Ag Innovations—hosted by Kalyan Chakravathy, New Delhi, India (Coffee Fabriek, Lounge Area).
- Integrating Agriculture in Urban Spatial and City Planning — hosted by Kathryn Underwood, City of Detroit, USA and Marco van Steekelenburg, Province of South Holland (Piggleme Room).

Betz, Nathaniel and Jill K. Clark, *A Metropolitan Agricultural Supplement for U.S. Food Systems*, Center for Farmland Policy Innovation, Ohio State University, *http://cffpi.osu.edu/docs/MAS072810.pdf*

This analysis reviews relevant literature and describes the concept and opportunity for development of Metropolitan Agricultural Supplements (MAS) across the country. It describes several interrelated developments that contribute to new societal priorities in the U.S., beginning with a capitalized industrial paradigm and culminating in the formation of the metropolitan region. Finally, it articulates how the metropolitan region presents a framework within which new opportunity can be developed, particularly in the form of community-based agricultural economic development.

Some key findings include:

- The beneficial aspects of industrialization, in agriculture and other sectors, include lower prices for consumers, greater opportunity for advancement in technological inputs and

more product than necessary for minimum standards of living (at least for those with access to markets).

- Problems associated with an over-reliance on industrialism, especially for agriculture, include the degradation of quality farmland, a concurrent reduction in rural vitality and decreased access to healthy, local food.
- A global, industrialized economy is not entirely sufficient to meet community socio-economic needs or match the service, community commitment and well-rounded skill development opportunities of a truly balanced economy.
- There is a renewed relevance of smaller, integrated economic systems and supply chains in a global age, in particular appreciation of quality construction, production and service – balanced by the continued presence of a still-reliable global industrial economy.
- Methods and components of a successful supplement to conventional agriculture are helpful in understanding the potential in small to medium-scale agriculture. Two of the most prominent of these approaches are Lyson's civic agriculture and Marsden's rural development model with emphasis on its short food supply chains.
- The development of metropolitan-scale agricultural economic enterprise to fill these growing opportunities can be achieved through community-based agricultural economic development (CBAED). CBAED is an integrated local effort to capitalize on intrinsic resources to retain and expand the agricultural economic strengths of a region. The concept was introduced by researchers at Penn State University and is being developed by the Center for Farmland Policy Innovation at Ohio State University through a grant program supporting implementation in local communities.

Peters, Christian J., 2008. *Foodshed Analysis and its Relevance to Sustainability.* Cambridge University Press.
This article offers a working definition of a foodshed (the geographic area from which a population derives its food supply) and foodshed analysis "the study of the action or potential sources of food for a population, particularly those factors influencing the movement of food from its origin ….to its destination…."

It explores the concept of "local food", concluding that the threat of global food insecurity is very real, due to climate change, dwindling fossil fuel supplies and conversion of agricultural land from food to energy production.

Peters concludes that "a major challenge facing agriculture and the food system in this century will be trying to improve food security and human nutrition while using less fossil energy and reducing greenhouse gas emissions."

Examples of the growing impacts of food insecurity include:

- Global food prices have seen an average annual increase of 15% between 2006 and 2008, relative to 1.3% between 2000 and 2005.
- Approximately 840 million people suffer from chronic hunger.
- More than 2 billion suffer from macronutrient deficiencies.
- Increases in food prices reduce the purchasing power of household incomes.

Potential solutions include:

- Know where food is coming from and where it might come from.
- Change consumption patterns, e.g.:

    - reduce excess consumption of calories;
    - substitute plant protein for livestock sources, which reduces land requirements of feed crops; and
    - explore options for reducing the demand for foods that occupy the most land area, require the greatest energy inputs or cause the largest greenhouse gas emissions (GHG) emissions.
- To analyze how shifts to diets based on more local foods could reduce energy use or climate forcing emissions, a foodshed analysis should: trace the flow of food from its origin as an agricultural commodity on a farm to its ultimate point of consumption.
- Measure different "costs" of producing and transportation products through the system, e.g. energy consumed, GHG emitted or prices paid at each stage in the food system and for different locations.

The resulting framework would:

- Help evaluate how the geography of the food system influences its impact on the environment and the vulnerability of populations to disruptions in their food supplies.
- Help plan how the geography of food systems should change to enhance sustainability.
- Estimate the capacity for population centers to supply more of their food from local sources.

For a detailed example of how to evaluate the capacity of an urban area to localize food production, see:
Peters, C.J., Bills, N.L., Lembo, A.J., Wilkins, J.L., and Fick, G.W. In press. *Mapping potential Foodsheds in New York State: a spatial model for evaluating the capacity to localize food production.* Renewable Agriculture and Food Systems.

Kaufman, Jerry and Bailkey, Martin, 2000. *Farming Inside Cities: Entrepreneurial Urban Agriculture in the United States.* Lincoln Institute of Land Policy Working Paper.
The report investigates the nature and characteristics of for-market city farming. The study states that urban vacant land is a costly problem for many cities which could be addressed, in part, through urban agriculture. The United Nations Development Program claimed that in 1996 urban-produced food accounted for 15% of the world's food production.

It also finds that entrepreneurial urban agriculture projects, whether non-profit or for-profit, differ across several important dimensions, including funding sources and capacity, labor, scale, production techniques and market.

The institutional climate for entrepreneurial urban agriculture is another important consideration. Some questions to consider include:

- In general, is the local government's attitude towards entrepreneurial urban agriculture supportive, neutral or negative?
- What is the local market demand for vacant inner city land?
- Are the local government policies and regulations relevant to urban agriculture facilitative or restrictive?
- Are local foundations willing to provide funding for such projects?
- What is the attitude of state and national government representatives towards urban agriculture?

- Do local community development groups view urban agriculture as a way of creating jobs and bringing economic investment to their areas or are they skeptical of its viability?
- What are the existing local greening programs from which urban agriculture could build?
- Can urban agriculture provide welfare-to-work jobs?
  Can city-produced foods help satisfy the public's increasing demand for organically grown products?

This study found that:

- City farming enthusiasts are far outnumbered by those who are skeptical about it or disinterested in it.
- Many for-market urban agriculture projects are underfunded, understaffed and confronted with difficult management and marketing issues.
- Urban agriculture is not seen as the "highest and best use" of vacant inner city land by most local government policy officials who would like to attract "better" tax paying uses on this land.
- The conventional view is that food-growing is something that takes place and belongs on rural land. The idea of turning urban areas into areas where a viable food crop could be produced is still foreign to most people.

Yet this study also found some evidence of a more hopeful reality for entrepreneurial urban agriculture:

- A diverse array of market city farming ventures exist. As of the year 2000, 70 entrepreneurial urban agriculture projects were underway throughout the country.
- Pockets of support for for-market urban agriculture ventures were found among a cadre of local and higher level government officials, non-profit community groups and local foundation staff in several cities.
- People who live close to where food-growing enterprises are located in inner city neighborhoods are generally positive about the value of such developments for their neighborhoods.
- Market city farming operations are beginning to tap into a small well of steady government and foundation sources to provide working capital for their early stages.
- A handful of entrepreneurial urban agriculture projects are beginning to show some profits. More of them are providing a variety of other social, aesthetic, health and community-building and empowerment benefits.

Martinez, Steve et al., May 2010. *Local Food Systems: Concepts, Impacts, and Issues.* USDA Economic Research Services, Economic Research Report Number 97.
This article provides a comprehensive literature-based overview of local food systems and makes the following general findings:

- There is no generally accepted definition of "local" food.
- Many definitions are based on market arrangements.
- Local food markets include direct-to-consumer sales, farmers' markets, CSAs and farm to school programs.
- Local food is most likely from small farmers who produce heterogeneous products and have short supply chains and are located in urban corridors.
- There is growing government support for local food.

- Some consumers will pay a premium for local food.
- Barriers to local food-market entry and expansion include capacity constraints, lack of distribution systems, limited marketing and uncertainties about regulations (e.g., food safety requirements). More information included in Barriers and Opportunities.

The study notes that local food markets account for small, but growing share of total U.S. agricultural sales (USDA Census of Agriculture Statistics Service):

- Direct-to-consumer marketing amounted to $1.2 billion in current dollar sales in 2007, according to the 2007 Census of Agriculture, compared with $551 million in 1997.
- Direct-to-consumer sales accounted for 0.4% of total agricultural sales in 2007, up from 0.3% in 1997. If non-edible products are excluded from total agricultural sales, direct-to-consumer sales accounted for 0.8%of agricultural sales in 2007.
- The number of farmers' markets rose to 5,274 in 2009, up from 2,756 in 1998 and 1,755 in 1994, according to USDA's Agricultural Marketing Service.
- In 2005, there were 1,144 community-supported agriculture organizations (CSAs) in operation, up from 400 in 2001 and 2 in 1986, according to a study by the non-profit, nongovernmental organization National Center for Appropriate Technology. In early 2010, estimates exceeded 1,400, but the number could be much larger.
- The number of farm to school programs, which use local farms as food suppliers for school meals programs, increased to 2,095 in 2009, up from 400 in 2004 and 2 in the 1996-97 school year, according to the National Farm to School Network. Data from the 2005 School Nutrition and Dietary Assessment Survey, sponsored by USDA's Food and Nutrition Service, showed that 14 %of school districts participated in Farm to School programs, and 16% reported having guidelines for purchasing locally grown produce.

Key findings on the economic development, health, food security and lowered transportation costs opportunities of local food:

- The expansion of local food markets implies that consumers in a particular area are purchasing more of their food from nearby sources and that more of the money they spend remains in their local community. Hence, local food systems have the potential to positively impact the local economy. Claims of economic development impacts, in the form of income and employment growth, are common in local foods research. (Ross et al., 1999).
- Expansion of local foods may be a development strategy for rural areas. Farmers' retention of a greater share of the food dollar by eliminating money going to the "middlemen" as a possible benefit. Roininen et al. (2006) assert that local food systems may encourage growth in local labor markets.
- The most direct way that expansion in local food systems could impact local economies is through import substitution. If consumers purchase food produced within a local area instead of imports from outside the area, sales are more likely to accrue to people and businesses within the area. This may then generate additional economic impacts as workers and businesses spend the additional income on production inputs and other products within the area (Swenson, 2009).
- Shifting the location of intermediate stages of food production and direct to consumer marketing can also be considered forms of import substitution.
- Empirical studies suggest that local foods can have a positive impact on local economic activity through import substitution and localization of processing activities. Using an input-output model (see box, "Input-Output Models and the Multiplier Effect"),

Swenson (2008 and 2009) predicted that locally produced fruits, vegetables, and meat products would increase output, employment, and labor incomes in Iowa. This was due, in part, to development of direct-marketing facilities and increases in local meat slaughtering and processing.

- Farmers' markets have been found to have positive impacts on local economies. Otto and Varner (2005) estimated that each dollar spent at farmers' markets in Iowa generated 58 cents in indirect and induced sales, and that each dollar of personal income earned at farmers' markets generated an additional 47 cents in indirect and induced income (multipliers of 1.58 and 1.47, respectively). The multiplier effect for jobs was 1.45; that is, each full-time equivalent job created at farmers' markets supported almost half of a full-time equivalent job in other sectors of the Iowa economy. Similarly, multipliers associated with farmers' markets in Oklahoma have been estimated to be between 1.41 and 1.78 (Henneberry et al., 2009).
- The magnitude of the economic impact from import substitution depends on the sources of inputs for local production and processing (i.e., whether money spent on inputs is retained locally or not) and the degree to which a local supply chain displaces local economic activity that supported nonlocal products. This could include reductions in traditional commodity marketing (e.g., grains) or industries that support distribution and marketing of nonlocal food products (e.g., supermarkets).
- Accounting for displaced economic activity within the local community reduces the positive economic impacts of localization, although estimated overall benefits are still positive. Swenson (2008) assumed that an increase in acreage devoted to local fruit and vegetable production would replace corn and soybean acreage, which partially offsets some of the predicted economic benefits. Hughes et al., (2008) account for lost spending at mainstream retail stores due to spending at farmers' markets in West Virginia. The net economic impacts of farmers' markets in the state were found to be positive, but lost sales at retail stores offset some of this impact. Farmers' markets in West Virginia were estimated to generate $656,000 in annual labor income, $2.4 million in industry output, and 69.2 full-time equivalent jobs. While still positive, these impacts were offset by $463,000 in lost labor income, $1.3 million in lost industry output, and 26.4 lost full-time equivalent jobs generated by mainstream retail stores (see table 3 in Hughes et al., 2008).
- Local food markets may stimulate additional business activity within the local economy by improving business skills and opportunities. Feenstra et al., (2003) examined the role of farmers' markets in creating and sustaining new rural businesses. Farmers' markets helped medium ($10,000-$99,999 gross sales) and large-scale ($100,000 or more gross sales) enterprises to expand or complemented existing, well established businesses. For small vendors (less than $10,000 gross sales), farmers' markets appeared to operate as a relatively low-risk incubator for new businesses and a primary venue for part-time enterprises in a nurturing environment. These types of benefits are difficult to quantify because investments in business skills and development may take years to generate observable benefits. However, business skill development may be an attractive benefit in areas where few other options are available to acquire additional skills and market experience.
- The presence of local food markets may also spur consumer spending at other businesses in a community. This spillover spending could support the retail sector in a community if, for example, a farmers' market draws consumers to an area where they would not have otherwise spent money. Lev et al., (2003) found that many farmers'

market shoppers traveled to downtown areas specifically to patronize the market and also spent additional money at neighboring businesses.

- The potential for local food systems to improve food security is conceptually similar to claims related to health benefits. That is, expanding local food options may increase the availability of healthy food items, particularly in areas with limited access to fresh food. The prevalence of healthy food items may encourage increased intake of fruits and vegetables, and improved availability may reduce problems related to food access and uncertainty. An implicit assumption in this argument is that local food systems improve access and reduce uncertainty (Cowell and Parkinson, 2003).

Swenson, David. ***Economic Impact of a Diversified Small Farming Operation in Woodbury County*****, Department of Economics, Iowa State University**
This very short report looks at the localized economic impact of a small, diversified farm ($153,000 in receipts) in Iowa that produces eggs, broiler chickens and beef; engages in some custom work; and realizes some feed sales.

The report found the following multipliers that may be applied to small, diversified farming operations:

Small Farm Regional Economic Impacts

	Farm Level Only	Total Regional Economy	Multiplier
Output	153,500	212,090	1.38
Labor income	40,812	59,104	1.45
Other income	17,895	29,171	1.63
Jobs	1.5	2.15	1.43

Blum-Evits, Shemariah, May 2009. ***Designing a Foodshed Assessment Model: Guidance for Local and Regional Planners in Understanding Local Farm Capacity in Comparison to Local Food Needs.*** **Thesis submission, Graduate School of Regional Planning, University of Massachusetts Amherst.**
This thesis, which was a major source in creating the SARE project's definition of the Portland Metropolitan Foodshed, explores how to conduct a regional foodshed assessment and provides guidance on the use of foodshed assessments. Foodshed assessments determine the food needs of a region's population and compare it to the land base needed to support that population. The thesis presents a variety of food system analysis tools, including community food assessment, community food security, food sovereignty assessment, community mapping technique and foodshed assessment. It also includes a discussion of how to determine the foodshed study area, data collected and analytical methods.

Case Studies

Oregon State University Extension Service Rural Studies Program, February 2011, ***Oregon Agriculture and the Economy: An Update.***
Using data from the 2010 Census, 2007 and 2009 USDA Census of Agriculture and 2005-2009 OSU Oregon Agriculture Information Network data on sales, employment and value-added, this study is the most recent publication examining the economic impact of agriculture in the State of Oregon. The study also relies on Oregon Employment Department data and estimates

from IMPLAN and the USDA Economic Research Service (ERS). The report is an update to the 2008 *Oregon Agriculture and the Economy.*

The study analyzes the following economic impact areas:

- Farm and Ranch Production
- Farmgate Sales
- Processing
- Agricultural Support Services, Wholesale Trade, Transportation and Warehousing, Retail Trade, and Food Services and Drinking Places
- Economic Footprint
- Oregon's Economic Dependence on Agriculture
- Implications for Agriculture and Oregon

The analysis includes:

- A profile of Oregon agriculture (including organic production on its own)
- An estimate of agriculture's "economic footprint"
- Measures of the extent to which Oregon's economy depends on agriculture or agriculture's economic impacts
- Discussion the implications of these findings

Key findings include:

- In 2009, agriculture was responsible for or connected to more than 15% of all economic activity in Oregon.
- For the same year, agriculture added more than $22 billion to Oregon's net state product, despite a decrease in the number of farms and land in farming.
- A 2005 USDA study showed that small farming operations or adaptive farms tend to have average gross sales per acre that are about twice as high as the overall average.
- For the same small farms, the average age of operator is lower than for farmers in general, and the number of off-farm work days declines over time.
- While Oregon's land use laws have protected agricultural acreage, they may also have constrained the development of adaptive farms.
- Between 2002 and 2007, the number of farms in organic production raised from 515 to 933 and from 1.3% of total farms to 2.4%.
- In 2007, 470 farms with 16,175 acres were converted to organic production.
- Between 2002 and 2007, the market value of organic farm sales rose from about $9.9 million to $88.4 million or from 0.3% of total farm sales to 1.9%.
- As of 2007, over 75% of total acreage (over 12 million acres) in Oregon was dedicated to food production.
- The USDA has initiated a "know your farmer, know your food" campaign educating people about buying local and supporting farmers' efforts to build personal relationships with their customers.
- In 2007, nearly two-thirds of Oregon farms reported net losses.
- In 2005, nursery crops, bulbs, greenhouse crops, and turf were 19.1 percent of the total, but by 2009 they had declined to 15.4 percent.
- Grains were 4.9 percent in 2005 and increased to 7.3 percent in 2009.
- The dairy products sector continues to increase its share of the total, from 8.4 percent in 2005 to 9.5 percent in 2009.
- Producers struggle to maintain profit while using sustainable production methods.

- Production costs, especially fuel, fertilizer and labor, continue to increase.

Opportunities:

- Policy changes can have a large impact on farmer viability, in terms of sales, jobs or value-added contributions.
- Oregon is a leader in alternative energy and there is great potential for farmers to generate additional income and increase tax breaks from leasing a small portion of their land to solar or wind turbine production.
- If a small portion of the alternative energy generated on rural and agricultural land is used within Oregon, the impact would far exceed the current level of Oregon tax dollars contributed from this development.
- There is great potential to increase demand for Oregon agricultural products by taking advantage of the very strong linkages between farmgate and restaurant plate (almost half of consumers' food expenditures are for food purchased away from home). Consumers are making the connection by seeking out eating and drinking places that highlight local food products.
- Decision makers can help develop these markets through low-cost incentive programs, customized land use regulations to encourage adaptive farming, support for research and tailor regulations to the needs of producers that are long-standing Oregon businesses.
- Strengthen development of controlled-release fertilizers, optimize plant nutrient use and minimize losses to the air and water to combat the rising cost of fertilizer dependent on imported natural gas and benefit the environment.

Hanson, Kim for Meyer Memorial Trust, December 2010, *Community Food Systems in Oregon: Opportunities to Build Capacity for Food Security, Health and Economic Vitality.* This study relies on a wide variety of data sources to detail the state of food security, health and economic vitality in Oregon's food systems. The literature review sources include: the Center for Disease Control, Community Health Partnership, OSU Extension Service and Public Policy programs, Oregon Food Bank, Ecotrust, Oregon Farm Bureau, Oregon Hunger Relief Task Force, the Oregon Department of Education, Washington State Department of Agriculture, the USDA and Worksource Oregon Employment Department.

In addition, the authors conducted 48 interviews with nonprofit organizations, government agencies, academics, business owners and foundations; participated in five National Good Food Network webinars; three community food events.

The report defines the concept of a community food system, why these systems are important and proposes a framework for strengthening community food system work in Oregon. Areas analyzed include:

- Local food infrastructure,
- Job potential in the food and agriculture sector.
- Health, social equity and food access.
- Farm-to-school/school gardens.
- Community involvement/leadership development.
- Statewide leadership/convening.
- Food system funders and funding gaps.
- Training and research.

Key findings of the literature review include:

- Oregon is one of the strongest agricultural states in the nation in terms of length of growing season, quality of agricultural soils, and the diversity and quantity of food crops that are produced. However, at the same time, our state currently ranks second among all states for the number of people who are forced to skip or reduce the size of their meals because they cannot afford enough food (*termed very low food security).*
- In August 2010, unemployment was at 10.6%, the 7th highest in the nation.
- Rural Oregon has been hardest hit, with several counties—including Crook, Douglas, Jefferson, Harney and Grant—all above 15% in 2010.
- The current recession is affecting families with no prior history of poverty and two-parent households who are typically more immune to poverty.
- Over the past three years (2008, 2009 and 2010), Supplemental Nutrition Assistance Program applications totaled over 710,000 individuals.
- In 2010, the Oregon Food Bank Statewide Netork distributed 917,000 emergency food boxes—up 17% over the past three years, with double digit increases in Washington, Coos and Curry counties.
- In 2009, 50.2% of Oregon school children were eligible for free or reduced price lunches.
- In 2009, 23% of Oregonians were considered obese, with close to 2/3 considered overweight or obese.
- Oregon has the lowest childhood obesity rate at 10%, while 16% of children aged 10-17 are obese nationwide.
- There are strong correlations between hunger, food insecurity, obesity and chronic disease.
- Low-income communities and people of color are more likely to suffer from diet-related disease than Caucasian people or affluent communities.
- According to the Oregon Farm Bureau, three quarters of what is produced in Oregon is exported to other states and overseas with ¼ sold in Oregon.
- Oregon has had less impact from industrialized agriculture because of the diversity of farm products, with high production of specialty crops, such as fruits, vegetables, tree nuts, dried fruits and nursery crops.
- Oregon has a strong base of multi-generational, family farms and emerging farmers, such as immigrants and a younger generation with a renewed interest in farming.
- There is an opportunity to develop the regional food infrastructure for storage, processing, marketing and distribution that supports the community food system movement, especially for small and mid-sized growers.

Key findings of the community food system analysis (revisit this framework for Literature Review #2):

- A community food system is a collaborative network that integrates sustainable food production, processing, distribution, consumption and waste management in order to enhance the environmental, economic and social health of a particular place.
- One of the most important aspects of sustainable community food system projects is that they increase resident participation to achieve the following goals:
  - Access to affordable, healthy food for all members of the community;
  - A stable base of family farms that use sustainable production practices and emphasize local Inputs.
  - Marketing and processing practices that create more direct links between farmers and consumers;

- Improved access by all community members to an adequate, affordable, nutritious diet;
- Food and agriculture-related businesses that create jobs and recirculate financial capital within the community;
- Improved living and working conditions for farm and food system labor;
- Creation of food and agriculture policies that promote local or sustainable food production, processing and consumption;
- Adoption of dietary behaviors that reflect concern about individual, environmental and community health.

Community Planning Workshop, University of Oregon, September 2010. ***Lane County Local Food Market Analysis.***
The primary objective of this study was to identify economic opportunities associated with the local food system.

The local food supply is defined by:
- County agricultural sales (OAIN data).
- Jobs in local food supply chain (no source).
- Food crops (OAIN).
- Food processing, storage and distribution (e.g. number of businesses and jobs in three areas (OED)).

Local demand for food is defined by:
- Residents spending on food (private study).
- Other academic research on trends/consumer demand.
- Interviews with managers from 15 major conventional grocery stores (Safeway, Fred Meyer and Albertsons).
- Projections of institutional demand.

Major findings of this study's literature review include:
- A 2006 study of the economic impacts of local fruit and vegetable production in Iowa, found that if Iowans purchased seven servings of fruits and vegetables locally for three months of the year, the direct and indirect economic benefits would amount to the creation of almost 6.000 jobs or one job per 500 residents.[1]
- A 2010 analysis of increasing local fruit and vegetable production in the upper Midwest calculated jobs multipliers of 1.67 to 1.95, meaning that for every on-farm job directly created through increased production of local fruits and vegetables, up to 95% of a job is created elsewhere in the economy.[2]
- An equal area of land in local fruit and vegetable production can support as much as five times as many jobs as corn and soybean production. [3]
- A study conducted by the American Farmland Trust in 2001 showed that 52%of Americans want their food to be produced within their own state. The same study noted that 54% of the respondents reported making a purchase at a farmers market within the past year; 40%reported purchases from a farm stand in the same period.

[1] Dave Swenson, The Economic Impacts of Increased Fruit and Vegetable Production and Consumption in Iowa: Phase II (Ames, IA: Leopold Center for Sustainable Agriculture, 2006).
[2] Dave Swenson. Selected Measures of the Economic Values of Increased Fruit and Vegetable Production and Consumption in the Upper Midwest (Ames, IA: Leopold Center for Sustainable Agriculture, 2010).
[3] Ibid.

- Another study found that 87% of consumers in Albany and Corvallis believed that the purchase of local foods to support local farms was very important or somewhat important and 89% believed purchase of local foods was important to support the local economy.
- In the same study of Albany and Corvallis, although income and demographic factors were not associated with support for local products, nearly 50% of consumers were willing to pay more for local products, compared with 35% willing to pay the same and 16% who expected to pay less.
- The University of Minnesota concluded that the supply of local food may be a larger barrier than the demand of local food and people were more concerned about freshness than they were about price.

Key Lane County findings include:

- Between 2002 and 2008, agricultural sales (including farm and forestry, nursery and livestock) increased 31%, from $106 million in 2002 to $140 million in 2008.
- In 2009, the saturated grass seed market and the collapse in the housing market brought sales down 18% in Lane County in 2009 to $115 million in sales.
- The Willamette Valley has nearly 1,500 grass seed farms: however it was only introduced to the valley as a crop in the 1920s.
- Since the 1920s, grass seed has replaced many of the traditionally grown food crops in the valley, particularly wheat (see figure below).
- The near-term outlook for recovery in the non-food crop market is not good because new housing starts drive demand for grass seed. Willamette Valley farmers now have up to a two-year supply of stored grass seed.
- In 2007, Lane County had 150 nursery and greenhouse businesses, growing 850 acres, with gross sales of $133 million, up 135% from 2006.
- Since the 2007 peak of $1 billion, nursery sales fell to $820 million in 2008 (nearly 17%) and many growers have gone bankrupt.
- Between 2007 and 2009, wheat sales increased by 87% in Lane County and some farmers are now turning to wheat due to increased demand caused by poor crop yield in other parts of the world.
- The local food industry accounted for over 6% of the jobs in Lane County in 2009.
- Local food production supports many different industries, including producers, distribution and transportation centers, food processors, storage facilities and grocery stores.
- In 2007, food crops were 44% of the county's agriculture sales, bringing over $34 million into the local economy. Livestock and dairy had the largest sales, followed by miscellaneous vegetables (15% of sales) and nuts (12%).
- Consistent with the decline in non-food crops, sale of food crops increased by 54% since 2007, yielding over $36 million in the county. While livestock decreased in this time, tomatoes, miscellaneous vegetables and grain all increased.
- When Agripac (a grower's cooperative processing food from the valley) went out of business in 2000, many Lane County farmers stopped producing food.
- In 2009, Lane County had 55 food manufacturing businesses, employing 1,498 people. However, these processors don't always source local ingredients. Interviewees are interested in using local products, but quality, price and capacity issues are a barrier.
- In 2009, there were 11 warehousing and storage establishments (not necessarily for food), employing 120 people. Anecdotally, this is down significantly from the food

storage that existed in the first part of the 20th century, when Lane County primarily served the local market.

- In 2009, there were 41 food distribution businesses operating at various scales (local, regional, national), employing 793 people.
- Chain supermarkets generate between $24 million and $39 million in produce sales each year.
- Local produce accounts for roughly 3% of produce sales in at Fred Meyer and Safeway stores in Eugene and Springfield.
- School districts in Lane County could potentially spend $22.7 million on local food annually.
- The University of Oregon serves approximately 9,000 meals/day and the annual food purchasing budget is almost $6.5 million, about 20% of this budget is spent on local foods.
- Other institutions with potential for local food purchasing include hospitals, prisons and more.
- Table I below estimates the current locally produced supply of each crop and compares it with the projected demand for consumption in Lane County. Not surprisingly, the results suggest that considerable sales leakage exists for all of the crops.

Table I. Lane County Focus Crop Supply and Demand (2007)

Crop	Supply (lb)	Demand (lb)	Variance (lb) (Supply-Demand)
Wheat	9,180,000	48,015,989	-38,835,989
Tomatoes	5,850,000	30,944,410	-25,094,410
Salad Greens	313,600	5,945,499	-5,631,899
Apples	5,304,000	17,349,731	-12,045,731
Winter Squash	450,000	1,836,673	-1,386,673

Source: "Commodity Data Sheets." *Oregon Agricultural Information Network.* Oregon State University, 2010. Web. 1 June, 2010. (supply of wheat, tomatoes and apples, sales per pound); "2007 Census of Agriculture: Oregon State and County Data." *2007 Census of Agriculture.* U.S. Department of Agriculture, Dec. 2009. Web. 1 June 2010. (supply of winter squash and pumpkins and salad greens, sales per pound); "Food Availability (Per Capita) Data System – 2007 data." Economic Research Service. U.S. Department of Agriculture, 16 Feb. 2010. Web. 1 June 2010. (demand for all crops)

Sacramento Area Council of Governments. ***Sacramento Region Local Market Assessment.*** **Http://www.sacog.org/rucs/wiki/index.php/Sacramento_Region_Local_Market_Assessment.** The Sacramento Area Council of Governments (SACOG) convened a Rural-Urban Connections Strategy (RUCS) project to better understand the opportunities for local food markets as well as agri-tourism. The RUCS team is working with a local market and agri-tourism working group to better understand the challenges and opportunities for a local food system and its interactions with land use policies, land supply, regulations, labor, water and other food system factors.

Total food production by county is compared to food consumption. This data is further broken down into product-specific production and consumption. These imbalances are analyzed to identify local market opportunities. The following table shows consumption as a percent of production in the SACOG area.

TABLE 1.2:
Annual SACOG Region Consumption & Production Estimates by Food Group (in tons)

Food Group	Production	SACOG Consumption	
	SACOG Region Production	Max SACOG Consumption Estimate (tons)	Consumption as % of Production
Fruits	487,672	407,041	83%
Vegetables	1,812,834	403,561	22%
Protein	49,204	620,975	1262%
Milk	224,367	330,873	147%
Grains	760,320	185,441	24%
Nuts, Oils, Herbs	66,941	110,639	165%
Sugars*	43	158,737	369156%
Total	**3,401,381**	**2,217,267**	**65%**

* Ag Commissioner production data only includes honey, not other sugars

Source: USDA/Economic Research Service; County Agriculture Commissioners
Note: For this food group analysis, the Loss-Adjusted Food Availability Primary Weight is consistently the largest estimate, and has been used as the "Maximum SF Consumption Estimate". When estimated commodity-by-commodity, the Primary Weight is not always the largest estimate.

Economic impacts of agri-tourism include:

- Agri-tourism is a key element of the SACOG region's food system, with 450 operations, including well established brands, regions and events. More data is required to estimate economic benefit, however in El Dorado, Agriculture Commissioner Bill Stephans estimates that, according to standard economic multipliers, agri-tourism contributes $285 million of the region's $440 million in agriculture.
- The USDA has estimated that approximately 2.5% of farms nationwide receive income from agri-tourism operations, totaling about $955 million.
- A 2006 New Jersey study determined that agri-tourism generated $57.5 million in revenue for the state's farmers in 2006, part of the broader $37 billion tourism industry.
- The research also found that for every dollar in agri-tourism sales generated on a New Jersey farm, 58 cents of additional sales are generated in a wide range of other allied businesses, resulting in an additional $33 million in revenue.
- One practitioner provided anecdotal evidence of this kind of multiplier effect in the SACOG region. Wayne Bishop mentioned that restaurants in the nearby town of Wheatland tell him that they experience a peak in customers during the month of October, when Bishop's Pumpkin Patch is drawing thousands of out-of-town tourists each weekend.
- The 2006 New Jersey study also found that 52% of farms earned at least half of their farm income from agri-tourism and 19% of farms reporting agri-tourism did not earn any revenue from agri-tourism activities, finding value in the opportunity to engage in interactions with the public that promote awareness, appreciation and understanding of agriculture.
- Of farms involved in agri-tourism, the largest farms – those with at least 1,000 acres – have the highest per farm median recreational income. Medium-sized farms – those with

250-299 acres – have the smallest recreational income. There are some place-based variables to note, including the farm's distance to a city with a population of at least 10,000. The greater the distance to such a city, the greater the likelihood of a farm's participation in agri-tourism.

- On-farm profitability statistics on agri-tourism can be difficult to gather for a few reasons. First, agri-tourism operations tend to be one of many activities taking place on-farm and are seldom tracked separately. Secondly, some farmers are reluctant to admit revenues generated from such activities (or revenues in general). The Small Farm Center at UC Davis is attempting to address the profitability and economics of agri-tourism in a statewide survey conducted in January, 2009.

The regional food distribution system is evaluated, considering the needs of small- to medium-producers with the goal of reducing "food miles" of travel.

Limited but growing consumer demand for local food was cited as an opportunity and a challenge. Other challenges and opportunities are identified, including:

- Education gaps and opportunities for consumers.
- Helping farmers find the right niche, e.g. organic, ethnic, small or specialty farmer.
- Creating new distribution and processing infrastructure.
- Increasing urban residents' connection to rural lands, farming and local food products.
- Incorporating agri-tourism as a source for increased income as well as a way to increase demand for local products, as documented in other states.
- Regulatory challenges such as complicated paperwork and licensing requirements, unclear regulatory processes and frustration with regulations that are one-size-fits-all and skewed to large size farms.
- Regulatory opportunities, such as developing land use ordinances to help facilitate the success of agri-tourism operations ("Ranch Marketing Ordinance" and "Winery Ordinance").
- Land use issues such as: subdivision of agricultural lands for development; restrictive zoning; traffic concerns with agri-tourism; water cost and reliability.
- Labor issues, e.g. farmers don't have the necessary skill sets, infrastructure or employee base to incorporate agri-tourism; dwindling numbers of "next-generation" farmers/children had no interest in taking over farm; diminished profitability for family farms; and finding adequate labor during harvest times, especially for smaller farms.

The study offers suggestions for how to overcome obstacles to expanding local food in the regional market, such as:

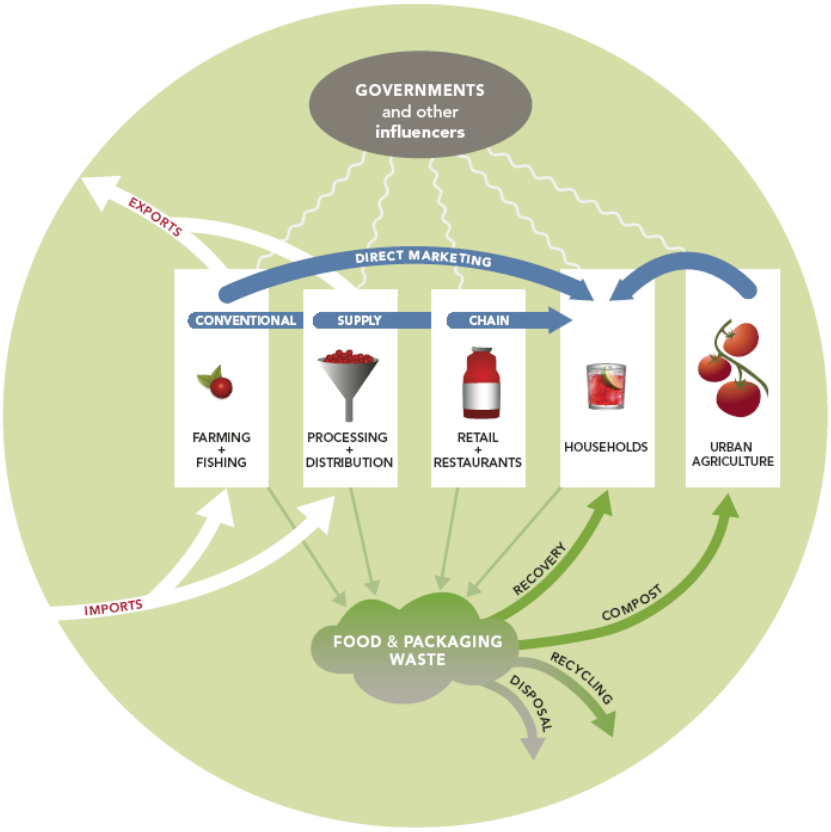
- Obstacles for farmers, e.g. working with distributors, grocery stores, restaurants, direct consumer sales, typical small business issues.
- Obstacles for distributors, e.g. product availability and greater coordination between small farmers.
- Obstacles for grocery stores, e.g. local farms need to fit grocery store needs, in-store realities.
- Challenges for farm-to-institution programs.
- Policy improvements at the state and federal level, county ordinances and complementary land uses.

Metro Vancouver, February 2011. ***Regional Food System Strategy.***
In 2008, the Metro Vancouver Board initiated a Regional Food System Strategy as part of its commitment to make a sustainable region. This Regional Food System Strategy is a policy document intended to be "a first step in creating a collaborative approach to sustainable, resilient and healthy food system that will contribute to the well-being of all residents and the economic prosperity of the region while conserving our ecological legacy."

The strategy includes the following vision statement:
Metro Vancouver seeks to achieve what humanity aspires to on a global basis – the highest quality of life embracing cultural vitality, economic prosperity, social justice and compassion, all nurtured in and by a beautiful and healthy natural environment. We will achieve this vision by embracing and applying the principles of sustainability, not least of which is an unshakeable commitment to the well-being of current and future generations and the health of our planet, in everything we do. As we share our efforts in achieving this vision, we are confident that the inspiration and mutual learning we gain will become vital ingredients in our hopes for a sustainable common future.

This vision is illustrated by the following graphic:

Figure 2 Diagram of a Regional Food System



The Vancouver Metro area has policies intended to protect land for agriculture. To stem the tide of the loss of farmland, the British Columbian government created the Agricultural Land Reserve (ALR) in 1973. The objective of the ALR is to protect farmland in perpetuity. This visionary policy was critically important in slowing the conversion of farmland. The creation of

the ALR has not eliminated the pressures to convert farmland to other uses but it has certainly diminished the rate of conversion.

The following challenges are cited for the regional agricultural system:

- It is a challenge to make an adequate living as a farmer in Metro Vancouver.
- The current level of agricultural production in the region may not be sufficient to support a range of agricultural related businesses including processing.
- Farmland has been attractive investment for speculators who are not interested in farming but hope to eventually remove the land from ALR and convert it to other uses.
- The high cost of farmland in Metro Vancouver also constrains farmers from expanding their operations as well as practicing crop rotation important for maintaining soil quality.
- Land prices are also a significant barrier to the entry of new and young farmers to the industry.
- Operating a farm that abuts a residential neighborhood or other urban land uses introduces conflicts and new expenses.
- Low financial returns and small size of farming operations in the region mean that the ability within the farming sector to invest in research and development is low.

The plan states: "If growing more local food is an important collective objective, then governments and academic institutions must help to fill the gaps." It identifies actors, roles, responsibilities and relevant plans and policies for implementing the strategy. It includes goals, strategies, sample actions and performance measures.

Meter, Ken, Crossroads Resource Center, March 30, 2011, *Ohio's Food Systems—Farms at the Heath of it All.*(Revisit this report for Literature Review #2)
Building on previous research (*Mapping the Minnesota Food Industry*), this report is an economic analysis of food systems across Ohio, focusing on what is emergent in the state's food system. Key opportunities include the growth of community-based food businesses, clusters, and emerging business owners. The framing research question is: "What initiatives are Ohioans creating in an effort to transform the Ohio food system so it becomes more responsive to the vision and needs of state residents?"

Data sources include:

- Interviews with food system practitioners (farmers, food buyers, procesors, food retailers, distributors, extension agents, and researchers) in as many parts of the state as possible.
- A review of historical literature focusing on *History of Agriculture in Ohio to 1880* and selected local histories in academic and historical libraries.
- Public sources, such as the Bureau of Economic Analysis, US Census, Census of Agriculture, Centers for Disease Control and Bureau of Labor Statistics.

Key findings include:

- Clusters of community-based food businesses are forming across Ohio.
- These clusters create jobs, but do even more; they create collaborative groups of new business owners.
- Food is a major industry in Ohio, yet the industry has suffered some erosion in recent years, despite Ohio's rising personal income and increased food consumption.

- The most sustained rapid growth in farm sales involves direct food sales from farmers to consumers.
- The key "lever" driving change in the Ohio food system is commerce based on relationships of mutual trust, through clusters of firms that grow in concert with each other to create both resilience and stability for Ohio.
- Emergent business networks are often led by people who hold significant experience in low-income communities or developing nations.
- The distinction between for-profit and nonprofit enterprise is becoming less rigid; both types of firms seek subsidies.
- Public bodies hold a clear responsibility to support the growth of local-foods business clusters by constructing supportive infrastructure.
- Ohio agriculture (and related public policy) has long been focused on distant markets, rather than state consumers, to the detriment of the state economy.
- $30 billion flows away from Ohio each year due to the structure of the farm and food economy; recapturing these dollars would create significant economic opportunities.
- The prevailing food system is deeply dependent upon fossil fuels, which may become prohibitively expensive, creating exceptional vulnerability for the Ohio food supply.

Delaware Valley Regional Planning Commission, January 2010. ***Greater Philadelphia Food System Study.***
This study envisions and prepares for a sustainable future amidst energy and climate uncertainties. It examines agricultural resources, food distribution and the food economy in Greater Philadelphia. This study includes a rigorous food system stakeholder analysis (pp 136 – 188).

Agricultural Resources: Using data from the Census of Agriculture, National Resource Conservation Services, and other sources, this chapter looks at the characteristics of the 100-Mile Foodshed's agricultural industry (supply). The following graphic shows the 100-mile Foodshed's capacity to feed the local population on existing farmable lands in terms of supply and demand:

FIGURE 1.21
Greater Philadelphia's Agricultural Land Needs

DEMAND		TOTAL AGRICULTURAL LAND NEEDS PER CAPITA (ACRES)*		TOTAL AGRICULTURAL LAND NEEDS FOR GREATER PHILADELPHIA (ACRES)	SUPPLY	DEFICIT
DVRPC REGION 2005 POPULATION (PERSONS)					DVRPC REGION 2007 TOTAL CROPLAND AND PASTURELAND (ACRES)**	(ACRES)
5,519,051	X	1.23	=	6,788,433	379,481	-6,408,952
DEMAND		**TOTAL AGRICULTURAL LAND NEEDS PER CAPITA (ACRES)***		**TOTAL AGRICULTURAL LAND NEEDS FOR THE 100-MILE FOODSHED (ACRES)**	**SUPPLY**	**DEFICIT**
100-MILE FOODSHED 2003 POPULATION (PERSONS)					100-MILE FOODSHED 2007 TOTAL CROPLAND AND PASTURELAND (ACRES)**	(ACRES)
30,954,544	X	1.23	=	38,074,089	4,127,348	-33,946,741

*Assumes a diet that meets recommended total caloric value of 2,000 calories per person, and includes about nine ounces of cooked meat and eggs and 91 grams of fat.
**Excludes "woodland not pastured" and "land in farmsteads, buildings, etc."

Source USDA 2009, DVRPC 2009

Most significant agricultural resources findings include:
- While many people lament the 100-Mile Foodshed's short growing season, local producers take advantage of the temperate climate, reliable rainfall, fertile soils, and groundwater resources and are employing season extension techniques. These natural

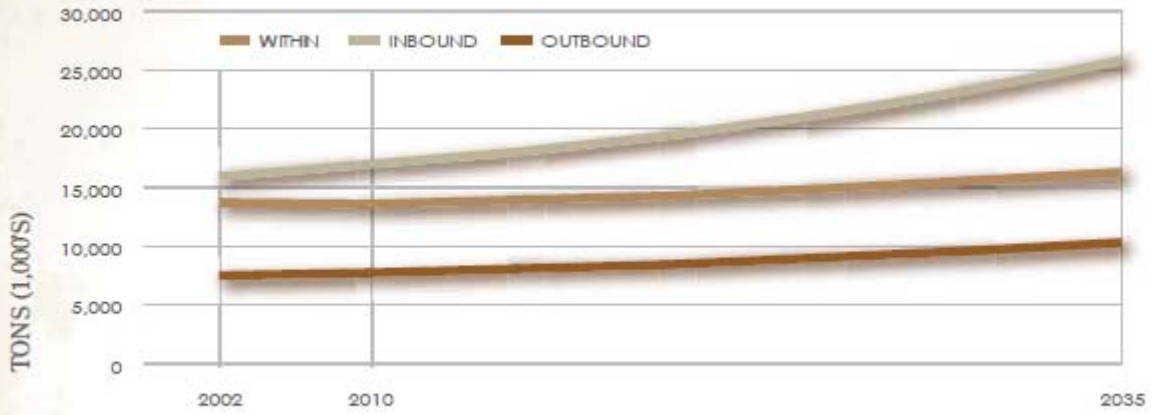
resources, combined with adaptable agricultural practices, are obvious competitive advantages and will become more important as other geographic areas grapple with water shortages, diminishing soil fertility, and the increased costs of fossil fuels.

- Greater Philadelphia's 100-Mile Foodshed is the second most densely populated area in the United States, second only to the overlapping 100- Mile Foodshed of New York City. However, the area retains about 27% of its land area in agriculture, thanks to land preservation and a history and culture of farming and food.
- The population density also makes land more expensive. All but one county has higher farmland values than the national average value of $1,892 per acre. The 100-Mile Foodshed's land is, on average, 342% more expensive.
- Because of the 400-year old Colonial history and culture of farming, 100-Mile Foodshed farms are three times smaller than the average American farm.
- While income from agricultural sales increased by 43.4% between 2002 and 2007 in the 100-Mile Foodshed, production expenses increased at the same rate, by 43.7%. Profitable farmers are working with slim margins.
- Even though the 100-Mile Foodshed is densely populated and only 27% of the land area is devoted to agriculture, a surprisingly high proportion of land is used to raise livestock.
- Nearly one-half (46.7%) of all 100-Mile Foodshed farms report raising livestock primarily (by NAICS). Another 12.9% of farms report primarily growing oil and grains, often used to feed livestock. This is surprising because livestock requires more land and land is in short supply in a densely populated area.
- Direct sales are low, accounting for only 1.4% of all agricultural sales in the 100-Mile Foodshed. This suggests that most local food is getting to market through conventional distribution channels, like produce wholesalers, meat processors and other food processors. Those counties farther away from the Philadelphia and New York metropolitan areas grow considerably more fruits and vegetables for local processors, such as Birds Eye or Campbell's Soups.

Food Distribution: Analyzes data (primarily from FHWA's FAF database) related to how food travels through the country and to Greater Philadelphia. Identifies the region's largest trading partners, competitive advantages and exports. Case studies are used to track food items from the point of production to the point of sale. The following graphic illustrates types of food movements in the 100-mile foodshed, specifically, the amount of food in tons that moves within, inbound and outbound from the area:

FIGURE 2.5

Types of Food Movements



Source *FHWA 2007, DVRPC 2009*

Most significant distribution findings:

- Most food produced within the region is consumed within the region, as evidenced by the low outbound movements. This further suggests that Greater Philadelphia's demand for local food outweighs the 100-Mile Foodshed's local supply.
- Forecasted demand, based on 2002 data, will continue to exceed local supply and the region will rely more heavily on domestic trade and international imports. These forecasts can, and most likely will, shift based on energy costs, policy changes and widespread consumer choices.

The Food Economy: Explores the metropolitan area's demand for food and the food economy's various sectors, including food and beverage manufacturing, food wholesaling, food retailers and food services, among others. Some significant findings include:

- In spite of how inexpensive food is in this country relative to other expenses, 11% of American households suffer from food insecurity, however the Philadelphia region has a lower than average SNAP (Supplemental Nutrition Assistance Program) participation, except for Philadelphia County, which had nearly double the participation rate.
- Prices of food and beverages have increased at a much slower rate in the Philadelphia region than in the United States or other northeastern MSAs. As a result, the average household in Greater Philadelphia spends just $5,600 a year on food, compared to New York ($7,000) and Washington DC ($7,500), although food makes up the same share (11-12%) of total household expenses in these and other northeastern MSAs, and the U.S.
- The food economy (including food retail, wholesale, processing, transportation and storage) constitute 11% of establishments and 11% of employees in Greater Philadelphia, however together they contribute a total of just 8% of the region's total economic output.
- Emerging economic opportunities include: growth in limited-service restaurants and specialty food store, regional strength in food service contractors and rising interest in locally and sustainably produced foods.

Overall findings include:

- Development and Land Use. Sprawling, low-density development threatens the viability of agriculture close to population centers and the retention of some of the most valuable soils in the United States.
- Cheap Food and Unhealthy Food. Low prices threaten the viability of farming, especially for food-producing farmers. The American diet causes health problems and there is a link between levels of income, access to healthy foods and the incidence of diet-related diseases.
- Capacity and Competition. The 100-Mile Foodshed is not sufficient to meet consumer demand. Producers often distribute their products to larger markets, thus increasing the food supply deficit. All U.S. cities are dependent on national and global imports.
- Consolidation in the Food Economy. The global food system is dominated by an increasingly consolidated pool of large, private actors with growing influence over consumers and regulators. This consolidation makes it difficult to track supply chains.
- Legislating and Planning for Change. Policies and planning processes can simultaneously create barriers and opportunities.

Unger, Serena and Wooten, Heather, May 24, 2006. ***A Food Systems Assessment for Oakland, CA: Toward a Sustainable Food Plan.*** **Oakland Mayor's Office of Sustainability and University of California Berkeley, Department of City and Regional Planning.**
This baseline analysis is intended to initiate discussion among Oakland City policymakers, staff and community members to consider the impact of the City's food system on areas of public concern. It explores how systems of production, distribution, processing, consumption and waste, as well as city planning and policymaking, could support the objective of having at least 30% of the City's food needs sourced from within the city and immediate region. A sample of recommendations includes:

Food Security

- Increase access to local foods for residents in federal and emergency food programs.
- Work with corner stores to transition stock from fortified alcohol and junk food to healthful and profitable products.
- Food waste recovery is an important part of the sustainable food system, because it "closes the loop."

Food Production

- Conduct a comprehensive review of current policy and zoning obstacles to urban food production.
- Adopt a plan, goals and timeline for how Oakland will produce a determined percent of its food consumption.
- Implement strategies to increase food waste diversion.

Economic Development

- The City of Oakland has a significant food wholesaling and processing cluster, with approximately 4,000 people employed in the "Food Distribution and Processing" cluster, or 4.9%of payroll employees in Oakland's "target industry clusters" and 2.2% of total employee payrolls.
- Provide assistance with location and expansion and streamlining fees and permitting processes for urban food production and processing.

- Incorporate food processing activities into wholesale market development, specifically providing job training and entrepreneurial skills that benefit low-skill or low-income workers.
- There is currently substantial untapped food retail demand in Oakland neighborhoods, especially those neighborhoods currently underserved by full-service grocery and that rely on small food retail stores with few fresh offerings.
- Approximately 85% of Oakland food retail stores are less than 3,000 square feet, suggesting that food retail policy should address small stores when attempting to improve food security and increase local food consumption.
- "Corner store conversions" offer one model for increasing fresh, nutritious produce in all neighborhoods, but particularly in low-income and underserved communities. Existing economic development tools, including Neighborhood Commercial Revitalization and Redevelopment incentives, should be employed in encouraging food retail improvements through the use of a new "Food and Façade Improvement Program."
- Additional incentives, such as Food Retail Enterprise Zones and special certification programs like the current Green Business program could be implemented to further advance sustainable food retail goals.
- Food waste is currently the largest single material in the Oakland waste stream (i.e., waste that goes to land fills rather than being composted or recycled in some other way), representing 12%of all waste in Oakland. Oakland has initiated commercial and residential food scrap recovery programs to begin to increase diversion and recycling of food waste. Commercial food scrap recovery is excluded from the Oakland exclusive garbage franchise with Waste Management of Alameda County and is collected for profit on an open market. In 2005, 12,000 tons of commercial food scraps were diverted from the waste stream. The residential food scrap and yard trimmings recycling program, known as the "Green Cart," diverted 34,000 tons.

Agricultural Preservation

- Adopt a local food ordinance that requires City government to purchase locally-produced and organic food (sample policy available).
- Encourage wholesale produce companies to procure goods from regional and organic farms.

Food Literacy

- Develop a healthy living and urban gardening public relations and educational campaign.
- Support and encourage more nutrition education in youth, adult and senior programs funded or administered by the City.

Center for Environmental Farming Systems, 2010. ***From Farm to Fork: A Guide to Building North Carolina's Sustainable Food Economy.***

North Carolina has launched an initiative to support the development of local and regional food systems. It seeks to be a leader in this field and cites the following assets:

- a diverse agricultural economy;
- a superior educational system;
- an adaptable workforce; and
- an expanding and diverse set of dedicated partners.

The goal is to build a sustainable food system that strives to be economically viable, environmentally sound and socially just. The report includes goals and strategies as well as actions for households and individuals to take.

Meter, Ken, June 3, 2010. ***Highlights of a Data Compilation.*** **For Treasure Valley Food Coalition and Oregon Food Bank.**
This study examined data from the Greater Treasure Valley region, a nine-county region in Idaho and eastern Oregon. One key trend in the Greater Treasure Valley region has been an increase in corporate farming. Over the years 1969 to 2008, the percentage of farm income earned by corporate farms, as a percentage of farm proprietor income, rose from 10% to 55%.

Farmers gain $221 million each year producing food commodities, spending $600 million buying inputs from external suppliers, for a net outflow of $400 million from the region's economy. Meanwhile, consumers spend more than $1.7 billion buying food from outside. When this is added to farm production losses, total loss to the region is $2 billion of potential wealth each year. This loss amounts to more than the value of all commodities raised in the region.

San Francisco Food Alliance, 2005. ***2005 San Francisco Collaborative Food System Assessment.*** **San Francisco Food Systems, The San Francisco Foundation.**
This is a comprehensive citywide food assessment, accounting for multiple sectors of the food system, including the broad range of activities involved in producing, distributing, consuming (including food retail, federal food assistance and charitable food programs) and recycling food. Its purpose is to provide a resource to help drive food related policy and decision-making. It states, "All people have a stake in how food is produced, distributed, consumed and recycled since all of our communities are intimately connected to issues of agriculture, food safety/sanitation, hunger and food accessibility, environmental sustainability and stewardship, nutrition and public health. Where our food comes from, how it is grown and consumed and subsequently recycled depends on the many contextual systems that address and meet the many challenges we face in the contemporary food system."

Key findings include:

- Production. In San Francisco, small scale production of fruits, vegetables and limited processed products occurs through urban farms, backyard, community and school gardens, as well as in nurseries and greenhouses.
    - Clear and consistent information is not publicly available around the management, upkeep, and sustainability of individual gardens, and overall support (e.g. staff, supplies, volunteers) for each community and school garden varies considerably.
    - Within San Francisco County's 31,360 acres of land, there are several large green spaces and 59 community gardens.
    - Over 800 community gardening plots are tended by nearly 700 community gardeners. Some areas of the city located far from open spaces, such as the Mission and Castro/Upper Market, tend to have a higher demand for community garden plots than can be met by the current supply.
    - Within the San Francisco Unified School District (SFUSD), about 25% of the 119 schools currently have a school garden. Community and educational gardens range in size from a few planter boxes up to a few acres. In 2003, San Francisco voters passed a school bond which included $2 million specifically earmarked for the

greening of 17 school yards in SFUSD. Educational school gardens have also recently been incorporated into the SFUSD Facilities and Master Plan.

- Distribution. In addition to the conventional wholesale food distribution model, there are several alternative distribution pathways that focus on getting food from a farmer directly to a household, private business or public institution. Examples include CSAs, institutional purchasing and farm to restaurant programs. These pathways have been established in order to help consumers get fresher food and develop relationships with the farmer and to help farmers get a higher percentage of the food's ultimate purchase price. Shorter distribution pathways are also supported because they are less resource-intensive and less polluting.
- Consumption – retail. Retail food stores are the primary way that most people acquire food, from supermarkets, grocery stores and convenience stores to bakeries and fruit and vegetable markets. There are 1,488 retail food stores in the city, including 55 supermarkets. The city's 11 farmers' markets provide another venue for food retail where food is sold directly from the farmer or producer. Approximately 250 farms sell products at the local markets.

Portland Metro Area Data and Case Studies

Exploring the Clark County Food System (2008)
http://www.stepstoahealthierclarkco.org/pdfs/Clark_County_Food_System_Report.pdf
This community food assessment draws on quantitative data about agriculture, personal and community health, resource management and food access, but also reports on a qualitative study in two Clark County neighborhoods on food access. This is a good model for community food assessments and also a strong local example to which other efforts can be compared.

The Clark County economic assessment includes data on the following topics:

- Section I: Profile of Clark County Farmers
  - Age of Principal Operator
  - Occupation Farm Education
  - Harvested Cropland in Full Ownership
- Section II: Land Base in Clark County
  - Acres in Farm Land & Agriculture Zones
  - Size of Farms
  - Type of Use on Land in Farms
  - Current Use Taxation Program
  - Natural Resource and Crop Land Conversion
- Section III: Agricultural Market in Clark County
  - Crop Diversity and Value of Sales
  - Fruit & Vegetable Diversity and Value of Sales
  - Livestock Diversity and Value of Sales
  - Direct Marketing
  - Case Study: CSA Model for Small Farm Direct
  - Further Considerations
- Section IV: Resource Management
  - Prime Agriculture Soils
  - Water Rights
  - Sheet and Rill Erosion

- Third Party Certification
- Food Waste
- Food Waste Diversion
- Further Considerations

Multnomah County Office of Sustainability, December 2010. ***Multnomah County Food Action Plan: Grow and Thrive 2025, Executive Summary.***
This Action Plan identifies key statistics about local food and public health in Multnomah County and provides a definition of sustainable food. The plan identifies five food system principles and defines goals, actions and indicators in four areas: local food, healthy eating, social equity and economic vitality.

Institute of Portland Metropolitan Studies, Sheila Martin et al., October 2008. ***Planting Prosperity and Harvesting Health: Trade-offs and Sustainability in the Oregon-Washington Regional Food System.***
This report identifies trends in the sustainable food system in the bi-state Portland Metro region based on stakeholder input and data review. The analysis includes nine stakeholder-defined goals for the regional food system that also serve as measures of how sustainable a food system is. The sustainability assessment considers a variety of factors, outlined below.

Land Use
- The conversion of farmland threatens land available for agricultural production.
- Soils are affected by urbanization and suburbanization.
- Rising land values for farming vs. other uses make it more likely that farmers will sell their land. Farmers' incomes are particularly volatile from year to year.

Water
- Food system uses affect water available for competing uses.
- Water quality issues can affect irrigated farming.
- Demand for water has grown over time.

Energy
- Rising energy prices affect the cost of agricultural products.
- Using agricultural land to produce biofuel inputs affects the cost of food products.

Human Capital
- The farming workforce is aging as well as diversifying.
- Farm employment is affected by the ability of farmers to make a living wage.
- Farm employment has fallen as a share of total employment.

Capital and Investment
- The increased use of machinery and government subsidies has led to larger-scale farms emerging over the last century.
- The number of very large and very small farms has increased, while medium-sized farms have declined.
- Concentration means a larger share of farm products are produced by fewer farms.
- Most farms in Oregon are owned by families or individuals.

- The food processing industry has experienced consolidation over the past few decades. The closing of local processing plants leaves small and medium farmers without a market for their crops.

Consumer Choices and Health

- Consumers spend about 11% of their annual income on food and over 10% of that is on fruits and vegetables.
- Farmers only capture 24-27% of the value of retail price of fruit and vegetables.
- Many farmers are increasing direct marketing to consumers (CSAs, U-Pick, farmers markets, stands) to increase this share.
- Food deserts aren't common in the Portland metro area.
- Food insecurity, public health and nutrition and food safety are other measures of a sustainable food system.

The conclusions section of this report includes metrics on the status of sustainability indicators, where available, and key recommendations from stakeholders. Detailed indicators are available in Appendix A and Appendix C includes specific action items for follow up.

Weigand, Elizabeth, Master's Project Proposal, May 27, 2009. ***Land Use Planning, Local Food & Sustainable Communities: Using a Form-Based Code to Support Agricultural Urbanism in Damascus, Oregon.***
This proposal introduces the idea of "agricultural urbanism," which considers agriculture and food production in the context of planning for sustainable urban areas, focused on shifting towards localized production systems. This project will focus on urban family farms inside the Damascus UGB, specifically preserving small-scale agricultural operations that can serve as production centers for urban areas.

Giombolini, Katy J. et al, Agricultural and Human Values, Posted online July 8, 2010.*Testing the Local Reality: Does the Willamette Valley growing region produce enough to meet the needs of the local population? A comparison of agricultural production and recommended dietary requirements.*
This study considers whether eating locally is feasible based on local agricultural production in the Willamette Valley. Findings indicate that current production does not meet the dietary needs of inhabitants for any of the USDA's six food groups. In the most recent analysis (2008) the region met the following share of dietary needs: 67% of grains, 10% of vegetables, 24% of fruits, 59%of dairy, 58% of meat and beans and 0% of oil. The Willamette Valley in this instance consisted of 10 counties.

This analysis is intended to be a model that can be replicated by community organizations without easily-available data and simple methods.

It concludes that although current production does not produce enough food to feed the local population, this does not mean that it cannot do so. Large percentages of locally produced crops are being exported and a good deal of agricultural land is being dedicated to non-edible crops. This report suggests that there is potential financial benefit to Willamette Valley growers. They identify next steps for creating a locally-based food system.

Clackamas County Soil and Water Conservation District, 2008. ***Clackamas County Agriculture and Natural Resources…The "Other" Traded Sector.*** **PowerPoint presentation.**

This presentation highlights key statistics on Oregon and Clackamas County's Agriculture and Natural Resources sectors and their contribution to the region's economic vitality. Findings include:

- Agriculture and food processing are the second-biggest contributors to Oregon's economy after high tech.
- Statewide, the amount of farmland has declined by 18.7% over the last 50 years.
- Clackamas is the second-largest agricultural county in the state, including:
  - 1879 square miles;
  - 215,210 acres of agricultural land;
  - 250,000 acres of forest land;
  - 5 major watersheds; and
  - 23 diverse commodities.
- It ranks first in several areas, including Christmas trees and organic farms.
- The Clackamas County Green Ribbon committee identified four core areas: forestry and ecosystems, agriculture, food processing and forest products.
- Metro's New Look ranked agricultural lands for long-term viability. It classified land as one of three types: foundation, important or conflicted. Conflicted lands are generally those on the urban fringe.

The presentation also presents the factors used by Metro in its Urban and Rural Reserves process as well as USDA Suitability Factors.

Workforce Investment Council of Clackamas County, July 2008. ***Clackamas County Demand-Side Study of Business and Institutional Buyers for Locally-Grown Food.***
Clackamas County wants to take advantage of the growing interest in locally-grown food to support farmers in the county. This study was conducted to assess the demand for locally grown produce among both institutional and private sector businesses and to explore their interest in purchasing produce directly from local farmers. Given the high number of small farms in the county, added attention was given to opportunities that would benefit small to medium-size farms and allow Clackamas County farmers to sell produce to these organizations, either individually or as a group.

This study consists of 31 interviews conducted with local food and sustainability leaders, industry experts, food service managers, directors and produce buyers from retail and wholesale businesses and institutions.

Key findings include:

- Demand for local produce is growing.
- Business and institutional foodservice customers have needs that a farmer must be willing to accommodate in order to do business.
- Pricing is a key driver in produce purchasing decisions.
- Consistent, high quality product is important.
- Food safety is an issue on food buyers' minds.
- Some customer segments are more promising than others, but there is a wide variety of business and institutional customers buying local produce.
- Farm cooperatives offer a way for local farmers to band together to address a common need.
- Food processing is a competitive business bringing new challenges.

- Support for local produce buying initiatives is growing.

Select conclusions and recommendations relevant to the SARE project are:

- Networking will benefit farmers.
- A quick-reference guide to Clackamas County farms is one way to build awareness of local farms and their products.
- Workshops to assist farmers interested in pursuing the business and institutional market may be useful.
- Clackamas County farmers might benefit from some form of farm cooperative.
- While specialty food processing offers opportunity, it requires a significant investment of time and financial resources.
- Farmers may be able to increase their profitability by raising a diverse set of crops.

Clackamas County Economic Development Commission, June 2007. ***The Green Economy: Agriculture, Natural Resources and Sustainable Development.***

The goal of this report is to develop a "roadmap" for Clackamas County's Agriculture/Natural Resources/Sustainability Economic Development strategy. The County is uniquely positioned to become a model for how urban and rural areas can collaborate to maximize their collective competitive advantage in a sustainable fashion.

Key assets and challenges sited include the following:

- The County has an extensive, healthy and productive biomass base for agricultural and forestry products – partially from forest thinning.
- The County is water-rich.
- Clackamas County has 118 miles of streams in National Wild and Scenic designation.
- Agriculture and forest products are currently traded export-driven sectors bringing external capital to the County.
- The County is an agricultural powerhouse:
    - Ranked first in Oregon for the sale of nursery crops and Christmas trees.
    - Ranked second in the state in all farm sales with $400 million in annual revenue.
    - First in the number of farms among state counties with 3,700 farms.
    - First in the number of farms (63) in certified organic production in the state, the majority of which are less than 50 acres in size.
- 215,210 acres are actively farmed.
- Most farms are small – 50% are less than 10 acres, and only 25% are larger than 21 acres in size.
- Agriculture contributes 24,085 jobs; $23,785 average annual wage; and $573+ million in annual payroll to the County.
- Agriculture contributes over $1 billion in total industry output per year to the Clackamas County economy.
- Clackamas County has 955 food processing employees making over $31.4 million in wages per year.
- The forestry and wood products industries account for 4,368 jobs, an average annual wage of $38,751 and over $169.3 million in wages per year. A 2.23 employment multiplier adds another 5,242 jobs and a 2.2 payroll multiplier adds over $377.5 million more to the forestry industry.

Of the report's four goals is to cultivate a vital Metropolitan Foodshed economy which will sustain the region and its population into the future. Relevant strategies and actions to support this goal include:

- Support expansion of Clackamas Community College educational programs to meet the needs of the agricultural industry, small farmers, organic food producers and nursery and Christmas tree industries.
- Expand the Portland/Multnomah Food Policy Council to the entire region or at least to Clackamas County.
- Update land use policies to provide long term protection of agriculture and timber lands based on the Metro's "New Look" Strategy.

Oregon Department of Agriculture, January 2007. ***Identification and Assessment of the Long-Term Commercial Viability of Metro Region Agricultural Lands.***
As part of its *New Look at Regional Choices,* Metro asked the Oregon Department of Agriculture (ODA) to inventory and assess the region's agricultural lands and to provide suggestions relating to policy directions that may be considered in protecting the region's agriculture industry.

General description: Metro (Multnomah, Clackamas and Washington Counties) agriculture is best described as richly diverse. Food, fuel, seed, fiber and flora crops can all be found in production within the region. Intensive and extensive agricultural practices are employed, as are dry land and irrigated crop production. Many of the attributes that are key to successful and sustainable agriculture can be found within the region. Excellent soils, moderate climate, water for irrigation, access to markets and an accessible transportation system are some of the examples of the key attributes.

The vast majority of soils found in the region are considered high-value farmland soils; a good percentage of those are also designated as prime farmland. Twenty percent of the state's prime farmland and 12% of the state's high-value farmland are located in the Metro region.

Agriculture is a key traded sector in Oregon, ranking 1st in the volume of exported products and 3rd in the value of exported products. Over 80% of this production left the state, with 40% leaving the country. Metro (jurisdiction) counties play a significant role in the state's agricultural production. In 2005 the value of production in the three counties was $714,547,000, nearly 17% of the state's total value of production. Clackamas County ranked 2nd and Washington County ranked 3rd in the state in overall farm and ranch sales. And it is easy to underestimate the value of Multnomah County. The smallest county in Oregon in terms of land area and the largest in terms of population, Multnomah County ranked 14th out of all 36 Oregon counties in farm sales.

Other quick facts:

- All three counties rank in the top five in terms of greenhouse and nursery production, the states number one ranked commodity. Metro counties account for over 50% of state production value.
- All three rank in the top five in the production of cranberries.
- Metro counties account for over 40% of the acreage in the state planted in small fruits and berries.

- Metro counties account for nearly 38% of the state sales of Christmas trees. Clackamas County ranks 1st, Washington County 6th.
- 60% of the Port of Portland's total export tonnage is agricultural products.
- Multnomah County leads Oregon in food processing with more than 22% of the payroll and 20% of the employees.

The larger metro study area includes Clackamas, Columbia, Marion, Multnomah, Washington and Yamhill counties. The area was divided into subareas and evaluated for various factors and land was classified as foundation, important or conflicted. Various data is presented for each of the 20 subareas. ODA concludes their report with a set of policy considerations related to the Urban and Rural Reserves process.

City of Portland Bureau of Planning and Sustainability, Fall 2009. ***Food Systems: Portland Plan Background Report.***
The City of Portland's Food Systems Existing Conditions Report represents the first attempt to characterize a wide range of food issues as part of the City's comprehensive planning efforts. It includes a summary of what is currently known about Portland's food system, conclusions from national studies about the impact and intersections between food, health and community design, and potential policy options the City could explore to support the food system. This work was conducted as part of the Portland Plan/Comprehensive Plan Update.

Relevant context, findings and policy considerations from this work are included below. Only pre-existing available data is used, so much of the data included is at the County level.

- There is growing demand for local, sustainably grown food. This is demonstrated in part by waiting lists for community garden plots (waiting list of over 1,300 people) and CSAs (100% of current capacity) as well as the popularity of farmer's markets (growth in two or three new markets/year).
- Portland's rising rates of obesity and diabetes represent two of our greatest health challenges.

City of Portland, Bureau of Planning and Sustainability, Fall 2009. ***Portland Plan Food Systems.***

<u>Direct Marketing</u>
Direct marketing, or the practice of selling directly by farmer to consumer, is a rapidly growing field in American agriculture. Direct market farms can be smaller-scale, even start-up operations as well as more established farming businesses. Some common faces of direct marketing include farmers markets, community-supported agriculture (CSA) operations, farm stands and U-pick operations and public markets. Some of these models are so new that little research has been done nationally or locally on their impacts. However, direct marketing still shows significant economic and social benefits to Portland, in addition to the health benefit of increasing access to healthful, local foods.

<u>Urban Agriculture</u>
This report provides context for urban agriculture in Oregon and Portland. Urban agriculture in Portland can be described broadly, incorporating the regional farm economy that contributes to food security and economic health; or more narrowly, referring to activities occurring primarily within the Urban Growth Boundary Oregon's land use system prioritizes development in urban areas and preservation of farm and forest land beyond urban areas. In

recent years, increased attention is being given to the importance of natural areas, open space and natural habitat within urban areas. Similar arguments for urban agriculture have begun to gain traction, especially in the current context of carbon emissions, high fuel costs and a down economy.

Urban agriculture advocates point to numerous benefits for enabling members of the public to grown their own food in cities and for supporting small, independent urban farms including reducing the distance to the market, educating urban residents about where food comes from and increasing resiliency to potential food shortages.

Institutional Purchasing

This report examines local existing conditions regarding the ability and desire of large institutions to buy local foods. Working with large institutions (e.g., governments, hospitals, universities, prisons and corporations) to buy organic, locally-grown or produced foods can have benefits for the nutritional value of the food and the amount of fossil fuels used to grow and transport it. Additionally, dollars directed towards supporting the regional food system stay in the local economy.

Barriers to seeing more institutions support the local food economy include:

- Food budgets have a very thin margin.
    - Large food service providers are able to determine prices in advance.
    - Some local governments are prohibited from favoring local products if they cost more. For example, government agencies in Oregon have the discretion to give up to a 10% premium for local food.
- Large food distributors offer a limited assortment of local products.
- Suppliers require vendors to carry a large liability insurance policy, creating a potential barrier for small producers.

Local conditions:

- A 2005 Multnomah County Corrections pilot project purchased fresh, in-season produce. The pilot led to the inclusion of sustainability criteria in their call for proposals for a five year food service contract. The County and the City of Portland both have policies directing the purchase of local goods when everything else is equal.
- 23% of Aramark (PSU's current provider) products are locally sourced (from Oregon or Washington).

Food Processing

This report examines the impact of the food processing industry on Oregon. Food processing in the U.S. is dominated by highly industrialized, larger-scale companies. Oregon has large companies like Con-Agra and Del Monte and smaller processors like Hood River Juice Co., Kettle Foods and Scenic Fruit Company.

In 2008, food manufacturing in Oregon added 1,800 jobs statewide, a 7.9%increase. This was the only manufacturing sector in Oregon to show growth during the same time period. Food processing is Oregon's third-largest industry, with $3.4 billion in annual revenues, 18,000 workers and a $542 million annual payroll.

More than 8,000 people in the Portland metro area are employed in the food manufacturing sector. Portland is home to the Northwest Food Processors Association (NWFPA), which has more than 450 member companies (processors and suppliers) including 86 food processors with nearly 200 production facilities throughout the Northwest (Oregon, Washington, Idaho). Its members are primarily fruit and vegetable processors but membership has expanded over the past several years to include seafood, dairy, bakeries, specialty and fresh-cut. NWFPA states that the Northwest food processing industry is a $17 billion industry which employs over 100,000 in Idaho, Oregon and Washington.

Barney & Worth, et al., November 2008. ***Growing Portland's Farmers Markets: Portland Farmers Markets/Direct-Market Economic Analysis.***
Portland's network of farmers markets are growing in number, customers, and sales. Portland's neighborhoods now hosts 18 farmers markets, with many more serving the metro region. Farmers market vendors sold $11.2 million worth of goods in 2007; this number continues to rise faster than population growth, indicating that farmers markets are gaining market share. The Hillsdale Farmers Market weekly market sales doubled to $70,000 between 2002 and 2007, and Hollywood Farmers Market doubled to $60,000 between 2000 and 2007. The total economic impact of Portland's network of farmers markets was estimated to be over $17 million in 2007; the markets produce more than 150 jobs with nearly $3.2 million in employee compensation.

Where do the farmers come from?
According to a recent study, half of all vendors at Portland neighborhood farmers markets travel 30 miles or less to arrive at market and over 90% of the food offered comes from within 100 miles; most of these vendors are located in the Willamette Valley. This differs from some other urban areas; in San Francisco, for example, dozens of farmers drive over 100 miles to reach the urban markets. The well-established farmers markets are generally at capacity for vendors, leaving new growers or farmers who want to explore direct marketing to go to newer, often lower-sale markets. Smaller vendors generally expect sales of around $300 per market day, versus $2,000 per day for more established and larger vendors.

Portland/Multnomah Food Policy Council, July, 2007. ***The Diggable City: Implementation Strategies and Recommendations.***
This report includes an inventory of city-owned lands that might be suitable for community gardens and other agricultural uses; provides a progress report on three pilot projects; outlines lessons learned and identifies recommendations for future urban agriculture program initiatives. The report indicates that relatively little city-owned land is available for agricultural uses. Land that is available often has a long-term purpose and not being considered for short-term uses. Community participation and support for projects on city-owned land are critical.

Recommendations include:

- Pursue urban agriculture partnerships with City bureaus.
- Expand the scope of potential properties by working with other public agencies.
- Integrate urban agriculture into City policies.

Barriers and Opportunities

Community Planning Workshop, University of Oregon, September 2010. ***Lane County Local Food Market Analysis.***

Revisit the implementation section of this document for how to overcome gaps and barriers. See the following table for gaps and barriers:

Gap	Strategy	Initiator (client)	Actor	Funding Opportunities	Cost	Timeframe
Gap I: Linkages Between Growers & Local Markets	Create a Local Food Coordinator Position	County	County and City	USDA Grants, County	$60,000-$75,000	1-2 years
	Create an Insitutional Clearinghouse	County	Local Food Coordinator	Americorps position, county or city funds, invoicing fees	As needed	1-3 years
	Optimize Food Distributor Logistics and Capacity	County	Local Food Coordinator	USDA Grants	As needed	Ongoing
	Help Distributors Market Local Food	County	Local Food Coordinator	N/A	As needed	2-3 years
	Develop Institutional Contracts that Require Local Sourcing	City	Schools and other institutions	Law school externship	No cost	1-2 years
Gap II: Limited Processing & Storage Capacity	Develop Tomato, Ben, and Squash Co-Pack Facilities	County	Processors	County, USDA grants	As needed	2-3 years
	Develop Controlled Atmosphere Storage Capacity	County	Processors	County, USDA grants	$500,000	2-3 years
	Increase Wheat Milling and Storage Operations	County	Producers, processors, distributors	County, USDA grants	As needed	1-2 years
	Research On-Farm Processing needs of Mid-Sized Farms	County	County, university	County, USDA grants	As needed	1-2 years
Gap III: Methods to Mitigate Risk	Encourage Processor- and Distributor- Supported Agriculture	County	Producers, processors, distributors	USDA loans banks, revolving loan fund	No cost	1-2 years
	Develop "Proof of Concept" through the EWEB Demonstration Farm	EWEB	EWEB	EWEB	$250,000	3-5 years
Gap IV: Institutional & Grocery Store Requirements	Support Food Safety Certification	EWEB	Producers, processors, distributors	EWEB, NRCS grants, county	As needed	1-2 years
	Create a "How to do Business with Lane County Grocery Stores" Manual	City	City, County, University, or other	Americorps position, USDA grants, university internships	As needed	1-2 years

University of Nebraska-Lincoln. January 16, 2009. ***Sustaining Agriculture in Urbanizing Counties: Insights from 15 Coordinated Case Studies, Executive Summary.***
This study sought to identify conditions under which farming may remain viable in agriculturally important areas subject to development pressure. The study considered 15 metro areas throughout the U.S. This study was funded by USDA's Cooperative State Research, Education and Extension Service. For each, the researchers sought to identify:

- Successful agricultural products.
- Adequacy of marketing outlets for crops and livestock.
- Supply and affordability of land for farming and ranching.

- Adequacy of other production inputs.
- Future outlook for agriculture.

Data included the Census of Agriculture, a mail-in questionnaire for owners and owner-operators, and stakeholder interviews.

Key findings in each focus area are:
Markets and Marketing

- Satisfaction with markets depends on proximity to buyers and processing facilities.
- Assistance with direct marketing and diversifying products is most valued.

Farmland Protection

- Agricultural protection zoning was effective in some counties including minimum lot sizes
- Urban services boundaries in combination with minimum lot zoning.
- Purchase of development rights programs.
- Agricultural use-value assessment for property taxes.
- Right to farm protections.
- Adequacy of the supply of hand labor and other human inputs.

The report's final chapter closed with seven policy recommendations derived from the research findings for promoting viable farming in metro areas:

1. Local governments should aim to prevent conflicts between farmers and non-farmer neighbors and to resolve those that arise in ways sympathetic to farmers' interests.
2. Local governments should apply zoning policies (e.g., large minimum-lot requirements, cluster zoning, urban growth boundaries) that help to preserve an adequate land base for agriculture.
3. State governments should enable, and local authorities operate, effective programs for purchasing development rights to farmland, thereby either adding to the land base that agricultural protection zoning supports or achieving what zoning fails to realize.
4. Public and private agencies should encourage farm families to plan for the transfer of ownership and management to their children or other relatives. We found that with family successors lined up, the future of individual farms could look much brighter (e.g., current owners more likely to invest in their land and operators less likely to quit farming in the county prematurely).
5. The same agencies should encourage the launching and sustaining of farm enterprises likely to be profitable on the urban edge. Given the pervasive land constraint, consideration should be given to relatively smaller acreage operations, such as those raising high-value products including specialty crops and livestock. Direct marketing can also add revenue and assistance programs for it was the second most popular type of help requested by our surveyed farmers—second after the purpose of "diversifying or adding new products."
6. In geographic areas lacking sufficient farmers to sustain agri-service businesses, policy makers may need to encourage adaptations by both farm operators and suppliers, such as Internet purchasing and "drop-off boxes" for equipment repair.

7. Policy makers should consider ways to provide for adequate numbers of farm workers. One tool urged by interviewed farm operators was to reform the federal government's guest worker program for migrant labor.

A Report to Community Food Matters and the Portland/Multnomah Food Policy Council, 2003. *Barriers and Opportunities to the Use of Regional and Sustainable Food Products by Local Institutions.*
Community Food Matters and the Portland/Multnomah Food Policy Council jointly undertook this study of barriers and opportunities to the use of regional and sustainable food products in local institutional food service programs. The research included interviews with key industry leaders as well as examination of related programs in neighboring Washington State. The research is useful for identifying preliminary themes pertinent to institutional purchases of regional and sustainable food products.

Common themes are:

- Customer demand is a powerful force for purchasing decisions.
- Institutions rely heavily on produce and grocery distributors for accessing product.
- Direct connections between producers and buyers is an opportunity to increase institutional purchases of regional and sustainable products (e.g., The Food Alliance).
- Other identified strategies for enhancing connections between producers and institutional purchasers included support for producers in meeting institutional purchasers' requirements and dissemination of information regarding producers and their available product.
- Contracts, bidding specifications, and prime vendor agreements often provide guidelines, requirements or restrictions on purchasing decisions that can be a barrier to the purchase of regionally or sustainably produced foods.
- Purchasers and distributors expressed a desire for more information to help them assess producers' sustainability practices.
- Price was listed as one of the most important factors in purchasing decisions by most institutions and distributors.

Martinez, Steve et al., May 2010. *Local Food Systems: Concepts, Impacts, and Issues.* USDA Economic Research Services, Economic Research Report Number 97.
As mentioned earlier, this article provides a comprehensive literature-based overview of local food systems and identifies the following barriers to local food-market entry and expansion:

- Capacity constraints for small farms.
- Lack of distribution systems to mainstream markets.
- Limited research, education and training for marketing.
- Uncertainties about regulations (e.g., food safety requirements).

Clackamas County Soil and Water Conservation District, 2008. *Clackamas County Agriculture and Natural Resources…The "Other" Traded Sector.* PowerPoint presentation.
This presentation mentioned above also presents the factors used by Metro in its Urban and Rural Reserves process as well as USDA Suitability Factors, including:

- Adjacent and "area" land use pattern.
- Agricultural land use pattern of area.
- Parcelization, tenure and ownership pattern.
- Agricultural infrastructure (labor, transportation, servicing, water availability).
- Zoning within the agricultural area.

- Location in relationship to adjacent non-resource lands.
- Location/availability of edges and buffers.
- Location in or near a metro area.
- Concentration/clusters of farms.

Farmers' Markets America and Barney & Worth, Inc, September 2008. ***Portland Farmers Markets/Direct-Market Economic Analysis: Survey of Peer Communities.***

Internal challenges:

- Locations that are impermanent and limited in size.
- Financial sustainability of farmers' market organizations, including grant reliance.
- Providing reasonable salaries to maintain long-term, professional staff.
- Fast-paced, market-creating jobs with the need for more community involvement.
- Need for on-site assistance for program development and expansions.
- Keeping fees low for farmers.
- The Board trying to micro-manage decisions.
- Opening new markets – finding sufficient space, parking and farmers given the aging farm population. "We need new models."

External challenges to deal with:

- Industry not appreciating organization's size and ability to create new markets.
- State regulations that slow food producers' ability to create new products.
- Supermarkets advertising their "farmers market" and moving their produce display outdoors.
- Perception of high price – need to expand core group to second tier of shoppers.
- Green Acres Act (Minnesota) makes it difficult for retiring farmers to defer taxes by renting their acreage. Large corn growers object and want to stop hobby farms so the average market farmer has 10 to15 acres, the largest 160 acres.

Opportunities:

- Identifying and reinforcing the WOW! experience for customers.
- Helping start young farmers through arrangements with retiring farmers, such as the lease/buy option with Growing Washington.
- Having some small, ragtag operators to give credibility. "We're leaders and we don't want to be a supermarket but can get along right next to them."

Kaufman, Jerry and Bailkey, Martin, 2000. ***Farming Inside Cities: Entrepreneurial Urban Agriculture in the United States.*** **Lincoln Institute of Land Policy Working Paper.**
This paper, also mentioned above, presents obstacles to urban agriculture and ways of overcoming them. Obstacles to the general practice of urban agriculture fall into four broad categories: site-related; government-related; procedure-related; perception-related.

- Site-related. Contamination, security and vandalism and lack of long-term site tenure.
- Government-related. Local (policy and practicality) and State and Federal (lack of financial support).
- Procedure-related. Inadequate financial resources, recruitment and retention of qualified staff, inadequate time, small-scale projects, coordination across scattered sites and high start-up costs.
- Perception-related. Concerns about food safety, economic productivity and agriculture as a rural activity.

The following are six typical obstacles (revisit for toolkit, pp 66-79):

- Entrepreneurial urban agriculture projects cannot be sited on vacant city lots because these parcels are too contaminated.
- Entrepreneurial urban agriculture projects located in crime-ridden neighborhoods are undermined by considerable vandalism.
- Entrepreneurial urban agriculture projects are not economically viable as profit generators nor as operations seeking only to cover expenses, thus they are not worth initiating or supporting.
- Entrepreneurial urban agriculture projects are run by people who, although energetic and committed, lack the necessary management and business skills to make such ventures successful.
- Entrepreneurial urban agriculture practitioners operate too independently and fail to work together to promote the potential and overall value of city farming.
- Entrepreneurial urban agriculture projects represent a temporary land use, lasting only until "real" revenue-producing development occurs.

Urban Agriculture barriers:

- Lack of clarity in the zoning code regarding legality of selling produce coming from backyards through new CSA models; rules against selling produce from community garden plots.
- Lack of definition for urban agriculture that recognizes the scale at which UA works; zoning limitations as to where agriculture is allowed.
- Limitations to planting edible plants and trees in public rights-of-way, including fruit and nut trees and vegetable gardening.
- Limited land made available for urban agriculture projects, either from public or private sources.

The paper includes suggestions for overcoming these obstacles to entrepreneurial urban agriculture.

Additional Resources

The following is a list of additional resources compiled from the bibliographies of the studies summarized above.

National Studies

APA Policy Guide on Community and Regional Food Planning (2007)
https://planning.org/policyguides/pdf/food.pdf
This APA-adopted policy guide lays out seven general policies related to food planning and details specific roles that planners can play in supporting each one. This is a great overview of the issues and the relationship between food systems and the field of planning.

Community Food Security Coalition
www.foodsecurity.org
Provides information on food systems, assessing food security and protecting local produce suppliers.

Community Health and Food Access: The Local Government Role (2006)
http://bookstore.icma.org/freedocs/E43398.pdf
This short report highlights many food-related topics with the perspective of a local municipality; case studies, policy examples and justifications provide a good introduction to the issues surrounding food systems and governments' roles.

Establishing Land Use Protections for Farmers Markets (2009)
http://www.healthyplanning.org/modelpolicies/farmersmarketpolicies.pdf
These two new resources from Public Health Law and Policy contain model general plan and zoning code language for promoting and expanding community gardens and farmers markets, with some case building at the beginning. These two resources are extremely useful for jurisdictions planning to incorporate food issues into their comprehensive or general plans or zoning codes.

A Planners Guide to Community and Regional Food Planning: Transforming Food Environments, Facilitating Healthy Eating (2009)
http://myapa.planning.org/APAStore/Search/Default.aspx?p=3886
This extensive document provides data, case studies and planning strategies to consider food systems in planning work, specifically on the subject of health. This is a great guide for planners looking to learn more about food systems and how they impact them in planning work. Specific strategies to improve food environments and facilitate healthy eating include:

- Information Generation
- Programmatic Efforts
- Plan Making and Design
- Regulatory and Zoning Reform

The Planner's Guide to the Urban Food System
www.planning.org/thenewplanner/2008/spr/pdf/PlannersGuidetotheFoodSystem.pdf
This short, colorful resource provides a simple overview of how food and planning intersect, what the food system is and how planners can take action.

Portland Metropolitan Region

Everyone Eats! A Community Food Assessment for Areas of North and Northeast Portland, Oregon (2008)
http://www.emoregon.org/pdfs/IFFP_N-NE_Portland_Food_Assessment_short_report.pdf
This assessment is based on results from 200+ surveys of North and Northeast Portland residents of certain zip codes. Surveys were targeted to reach lower-income individuals. Findings include information on accessing healthful foods, nutrition, interest in local foods and more. Other parts of the reports cover recommendations, summaries of other information-gathering and exploration of the role of faith communities in building food security.

Portland/Multnomah County Food Policy Inventory (2002)
Prepared by the Portland/Multnomah Food Policy Council
This inventory was written shortly after the Portland/Multnomah Food Policy Council was formed, and tries to provide a "lay-of-the-land" look at City, County and other agencies that impact the food system either explicitly or implicitly. Provides an interesting look back at the state of food policy before the FPC was on the scene.

The Price of Eating Right: Oregon Trail at Farmers Markets (2005)
Prepared for the Oregon Food Bank by New Territories Research. Available through the Bureau of Planning and Sustainability
Kaiser Permanente funded this study to improve local produce options for low-income residents. Over 100 food stamp users were interviewed about their use of farmers markets and use of EBT (electronic benefits transfer is the "credit card" version of food stamps) at farmers markets.

The Prospect for Expanding Portland's Farmers Markets: Are Growers Ready to Ramp Up the Supply? (2008)
Barney & Worth, Inc. and Globalwise, Inc.
This study examines the capacity of Portland's farmers markets to expand in the future, looking at both local consumer demand and regional farmer/vendor supply. The analysis of regional agricultural supply capacity was conducted to determine the ability of direct market producers to adequately supply existing and expanded/additional farmers markets in Portland.

Regional Equity Atlas: Metropolitan Portland's Geography of Opportunity
http://www.equityatlas.org/
The Coalition for a Livable Future's (CLF) report and interactive website has detailed maps and analysis on many equity and access indicators, including a discussion on food access. Some specific Portland information is available from CLF directly. The report focuses largely on region as a whole.

A Snapshot of Local Food Production in the City of Portland and Multnomah County (2002)
By Jennifer Bell. Field Area Paper for the MURP degree
This scholarly paper gives a snapshot view of Multnomah County agricultural production using state-collected statistics. A policy analysis and GIS mapping lays out a path to increasing local food production. While somewhat dated, the document provides a clear case for moving urban agriculture forward.

APPENDIX C
Portland Region Food System Economic Analysis

Cogan Owens Cogan, LLC

with data from

Metro Portland (Oregon), Local Farm & Food Economy, May 2011
Ken Meter, Crossroads Resource Center

Oregon Agriculture and the Economy: An Update
Oregon State University Extension Service Rural Studies Program

June 7, 2011

This project is supported by the Western Sustainable Agiculture Research and Education Program.

Introduction

The Portland metropolitan area is well known nationwide for its cutting edge sustainability vision and urban development and farmland protection framework. The region has a large number of productive small farms within and near urban areas. There is a growing interest in, and support for, locally grown, sustainable food. This interest is driven by rising concerns over public health, food security, transportation costs, climate change, economic turmoil and the search for a more community-based, sustainable lifestyle. There is growing support for farmers markets, community supported agriculture, community gardens, local healthy food school programs and institutional purchases of fresh, locally grown produce. Increasing locally-sourced fruits and vegetables is also a goal of the Regional Food Bank.

Western Sustainable Agriculture Research and Education (SARE) is funding a study to examine key agricultural trends, identify producer needs and define strategies to strengthen the local food production system. The goals of the study are to:

- Define the Portland Metropolitan Foodshed; identify related agricultural and economic trends and develop a needs assessment based on input from producers and other stakeholders.
- Assemble a regional toolkit of strategies to support evolution of a sustainable Portland Metropolitan Foodshed.
- Work with the City of Damascus, Oregon to test the toolkit on a local level.
- Develop a research and educational program that supports these goals and supports small and medium farmers in the region.

This Portland Region Food System Economic Analysis portion of the SARE study seeks to examine the nature and size of the Portland regional food market. The analysis draws heavily from a study by Ken Meter of the Crossroads Resource Center, *Metro Portland (Oregon), Local Farm & Food Economy* and *Oregon Agriculture and the Economy: An Update* from the Oregon State University Extension Service Rural Studies Program. For the purposes of this study, the Portland region includes Clackamas, Columbia, Multnomah, Washington, and Yamhill counties. This is a smaller region than the standard Metropolitan Statistical Area, which also includes Clark and Skamania Counties in Washington.

Oregon Food Economy

There are approximately 38,500 farms in Oregon growing 220 different commercially-grown agricultural crops. Approximately 85% of Oregon farms are operated by sole proprietors and another 10 to 12 percent are family partnerships or corporations. The farm gate value of Oregon's agricultural sector is valued between $4-5 billion, with 70% coming from crops and the rest from livestock.[1]

Oregon agricultural acreage declined seven percent between 1997 and 2007. There are 1,422 fewer farms in 2007 than in 1997 and the average size of a farm shrunk from 442 to 425 acres. This decline has been slowed to some degree by the increase in the number of adaptive farms of fewer than 50 acres. Adaptive farms are typically smaller farms that produce a variety of outputs and tend to have average gross sales per acre approximately twice the overall average.

[1] "Crops" refers to plants produced by farmers, including grains, fruit, nuts, vegetables, Christmas trees, nursery or ornamental crops, grass seed, vegetable seedlings and many other products. "Livestock" sales include animals (Cattle, hogs, poultry, sheep, etc.) or products derived from these animals (milk, eggs, leather, offal, etc.)

There are approximately 16.5 million acres of farmland in Oregon, over half of which are occupied by cattle ranching and farming operations. As shown in Table 1, smaller acreages are used for food crops, such as grains, vegetables, and fruits and nuts.

Table 1. Oregon farmland acreage by type (2007)

Type	Acres	Share (%)
Grain farming	2,097,777	12.8
Vegetable farming	242,192	1.5
Fruit & nut farming	253,189	1.5
Greenhouse, nursery, & floriculture production	264,844	1.6
Other crop farming (hay, mint, other crops)	2,815,956	17.2
Cattle ranching & farming	9,409,053	57.4
Hog & pig farming	12,975	0.1
Poultry & egg production	41,530	0.3
Sheep & goat farming	205,664	1.3
Horse & other equine production	673,445	4.1
Other animal production	383,022	2.3
Total	**16,399,647**	**100.0**

Source: U.S. Department of Agriculture, *2007 Census of Agriculture*, Table 46 (February 2009).

Since 2002, the number of Oregon farms in organic production has nearly doubled with the number of farms increasing from 515 to 933 farms. Table 2 shows the market value of organic farm sales has increased dramatically from just under $10 million in 2002 to more than $88 million in 2007.

Table 2. Organic Agriculture, Oregon (2002 and 2007)

Category	2002	2007
Total land used for organic production (acres)	N/A	92,405
% of total farmland	N/A	0.6
Number of farms in organic production	515	933
% of total number of farms	1.3	2.4
Land being converted to organic production (acres)	N/A	16,175
Farms being converted to organic production	N/A	470
Market value of organic farm sales ($000)	9,933	88,379
% of total market value of farm sales	0.3	1.9

Sources: U.S. Department of Agriculture, *2007 Census of Agriculture*, Table 43 (February 2009) and *2002 Census of Agriculture*, Table 2 (June 2004).

Five of Oregon's processing sectors make up 62.3 percent of processing sales in Oregon: frozen food manufacturing ($1.9 billion); dairy ($1.9 billion); fruit and vegetable canning, pickling, and drying ($1.6

billion); breweries, wineries, and distilleries ($1.3 billion); and bakery goods, pasta, and tortilla manufacturing ($906 million).

Table 3 divides the Oregon food economy into seven sectors and summarizes agricultural sales, employment, and value-added expenditures for 2009. Processing made up the largest portion of agricultural sales, with an output of more than $12 billion, followed by food services ($7.7 billion) and production ($4.3 billion). Food services employed more than half of all employees in Oregon's food economy and produced more than $4 billion of added value.

Table 3. Oregon Agricultural Output, Employment and Value Added (2009)

Aggregated sector	Output—Sales ($000)	Employment (full- & part-time jobs)	Value added ($000)
Production	4,321,666	54,120	1,607,990
Processing	12,355,613	31,308	2,232,797
Ag. support services	238,105	7,762	182,820
Wholesale trade	2,568,297	12,958	1,689,559
Transportation & warehousing	743,518	4,859	356,620
Retail trade	980,933	16,369	828,492
Food services & drinking places	7,696,380	133,365	4,026,638
Total agriculture	**28,904,512**	**260,742**	**10,924,917**
Total all Oregon sectors	**278,803,857**	**2,177,594**	**153,024,613**
Portion agriculture (%)	10.4	12.0	7.1

Source: Oregon State University Extension Service, Rural Studies Program, February 2011

These expenditures and employment have a broader impact on Oregon's economy. Each agricultural sector influences a wide range of suppliers. These indirect expenditures include purchases for food, medical services (e.g. veterinarians), and retail goods among others. Table 4 shows the direct and indirect expenditures that make up the footprint of Oregon's food economy.

Table 4. Oregon Agriculture Direct and Indirect Expenditures (2009)

Aggregated sector	Output—Sales ($000)	Employment (full- & part-time jobs)	Value added ($000)
Production	5,745,810	62,885	2,622,376
Processing	20,541,299	98,815	6,991,892
Ag. support services	501,025	9,847	325,967
Food services & drinking places	14,610,626	188,036	7,944,652
Subtotal—Production, processing, ag. support services, and food services & drinking places	*41,398,759*	*359,583*	*17,884,887*
Wholesale trade	4,636,806	30,368	2,928,210
Transportation & warehousing	1,418,687	10,873	759,378
Retail trade—Food and beverage	1,641,518	22,067	1,223,297
Total agriculture	**49,095,771**	**422,891**	**22,795,773**
Total all Oregon sectors	**278,803,857**	**2,177,594**	**153,024,613**
Portion agriculture (%)	17.6%	19.4%	14.9%

Source: Oregon State University Extension Service, Rural Studies Program, February 2011

Table 5 represents the external demand from outside Oregon for goods and services related to the major parts of Oregon's food economy, with processing showing the greatest demand.

Table 5. External Demand for Oregon Agriculture (2009)

Aggregated sector	Total ($000)	Share (%)
Production	2,686,808	2.95
Processing	7,448,031	8.17
Ag. support services	48,323	0.05
Food services & drinking places	934,845	1.03
Wholesale trade	520,527	0.57
Transportation & warehousing	156,202	0.17
Retail trade	184,636	0.20
Total agriculture	**11,979,372**	**13.14**
Total all Oregon sectors	**91,159,458**	**100.00**

Source: Oregon State University Extension Service, Rural Studies Program, February 2011

As much as 80% of the agricultural products produced in Oregon are sold out-of-state and half of that is exported to foreign countries. The impacts of the external demand for agriculture throughout the Oregon economy are summarized in Table 6.

Table 6. Summary of Oregon Agricultural Economic Impacts (2009)

Aggregated sector	Output—Sales ($000)	Employment (full-& part-time jobs)	Value added ($000)
Production	4,884,028	52,128	2,143,749
Processing	14,666,472	71,612	5,016,120
Ag. support services	101,683	1,999	66,155
Food services & drinking places	1,774,688	22,840	965,002
Subtotal—Production, processing, ag. support services, and food services & drinking places	*21,426,871*	*148,578*	*8,191,027*
Wholesale trade	939,760	6,155	593,472
Transportation & warehousing	296,560	2,049	156,800
Retail trade	308,974	4,154	230,255
Total agriculture	**22,972,165**	**160,936**	**9,171,553**
Total all Oregon sectors	**278,803,857**	**2,177,594**	**153,024,613**
Portion agriculture (%)	8.2	7.4	6.0

Source: Oregon State University Extension Service, Rural Studies Program, February 2011

Portland Regional Food Economy

The food economy can be divided into four sector components: production, processing, distribution and consumption. Table 7 provides information for food-related businesses in the Portland region according to these sectors. Consumption comprises more than half of the annual payroll and two-thirds of the employees in the Portland regional food economy.

Table 7. Food-Related Businesses in the Portland Region (2008)

Sector	Business Type	Number of Firms	Employees	Annual Payroll
Production	Agricultural Supply	103	916	$37 million
Production	Farm and Garden Machinery Wholesalers	43	414	$18 million
Production	Farm employees	-----	21,429	$450 million
Production	Farm operators	9,233	11,418	($53 million)
	Production Sub-Total	***9,379***	***34,177***	***$452 million***
Processing	Food Manufacturing	239	8,536	$329 million
Processing	Beverage Manufacturing	98	1,596	$47 million
	Processing Sub-Total	***337***	***10,132***	***$376 million***
Distribution	Grocery Wholesalers	275	7,917	$336 million
Distribution	Farm Product Wholesalers	28	224	$22 million
Distribution	Alcoholic Beverage Wholesalers	49	2,340	$102 million
	Distribution Sub-Total	***352***	***10,481***	***$460 million***
Consumption	Food & Beverage Retail	992	21,616	$531 million
Consumption	Food Services and Drinking Places	5,090	79,497	$1.153 billion
	Consumption Sub-Total	***6,082***	***101,113***	***$1,684 million***
	Total	**16,150**	**155,903**	**$2,972 million**

Data cover the Portland Metropolitan Statistical Area; population of 2.2 million. Non-farm employment is drawn from U.S. Bureau of the Census, County Business Patterns. Farm data is compiled from Bureau of Economic Analysis regional economic profiles for the seven counties in the Portland Metropolitan Statistical Area. "Payroll" for employees is taken from total cost of farm labor reported by the region's farms. "Payroll" for farm operators is net cash income from farming for metro area farms.

Production

Land

The Portland region's 9,233 farms encompass more than 500,000 acres, amounting to three percent of the state's farmland and 24 percent of Oregon's farms. As shown in Table 8, Clackamas County has the greatest number of farms (3,980) and farm acreage (182,743) in the Portland metro area, followed by Yamhill County (2,155/152,212), Washington County (1,761/127,984), Columbia County (805/52,102) and Multnomah County (563/17,832). The region has seen a decrease in the number of farms since 2002. The most prevalent farm size is 10-49 acres with a total of 4,138 farms (45%) with an average size of 63 acres. Approximately 78 percent of farms are less than 50 acres (7,174 farms) while only one percent 1,000 acres or more.

Table 8. Region Farm Types (2007)

Farm Typology (2007)	Clackamas		Columbia		Multnomah		Washington		Yamhill		Portland Metro	
	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Limited-resource	500	14,029	98	2,981	68	2,691	221	6,037	258	9,822	1,145	35,560
Retirement farms	969	37,341	220	13,068	136	N/A	365	15,465	467	28.663	2,157	65,903
Residential/lifestyle	1,668	35,341	360	20,960	191	4,324	670	15,567	899	29,902	3,788	106,094
Farming occupation/ lower sales	461	17,703	100	6,748	81	2,515	229	13,043	216	12,419	1,087	52,428
Farming occupation/ higher sales	72	8,237	8	N/A	20	N/A	49	8,446	39	8,341	188	25,024
Large family	48	12,733	4	N/A	17	2,095	46	13,879	32	13,615	147	42,322
Very large family	88	32,778	2	N/A	20	6,207	70	32,973	57	46,453	237	118,411
Nonfamily	183	24,581	13	8,345	30	N/A	111	22,574	147	31,631	484	87,131
Total	**3,989**	**182,743**	**805**	**52,102**	**563**	**17,832**	**1,761**	**127,984**	**2,115**	**152,212**	**9,233**	**532,873**

Farms in the Portland region have 297,465 acres of harvested cropland. Approximately 27 percent (2,481 farms) have a total of 90,391 acres of irrigated land, 144 of which receive irrigation water from the U.S. Bureau of Reclamation.

The average value of land and buildings per farm is $665,945; 83 percent of the state average of $804,145. The region's farmers received an average combined total of $61 per year million in subsidies (11-year average, 1999-2009), mostly to raise crops such as wheat or corn that are sold as commodities, not to feed the region's residents.

2,128 (23%) farms use conservation practices such as no-till, limited tilling, filtering field runoff to remove chemicals and fencing animals to prevent them from entering streams. 1,873 (19%) farms use rotational management or intensive grazing and 101 farms generate some electricity on the farm.

Sales

Portland region farms sell $799 million of products (food and fiber) per year (1969-2009 average). Sales of nursery crops, ornamental shrubs, Christmas trees and grass seed make up a large share of these sales. Even major food items (fruits, nuts and berries; poultry and eggs; and milk and dairy) are often sold as commodities for further processing, not as food for direct human consumption. Furthermore, these products are often exported out of the region.

Portland region farms sold more than $1 billion worth of products in 2007, as shown in Table 9. Nursery and ornamental products make up the majority of these sales, totaling more than $600 million. Food sales totaled approximately $392 million in 2007. The top-selling food products were fruits, nuts and berries at $139 million followed by forage products ($86 million) and poultry and eggs ($59 million).

Table 9. Top Products Sold by Portland Region Farms (2007)

Product	Food Sales	Nonfood Sales	Total Sales
Nursery and ornamentals*		$608,000,000	$608,000,000
Fruits, nuts & berries	$139,000,000		$139,000,000
Forage*	$86,000,000		$86,000,000
Poultry & eggs	$59,000,000		$59,000,000
Christmas trees*		$54,000,000	$54,000,000
Vegetables	$46,000,000		$46,000,000
Milk & Dairy*	$34,000,000		$34,000,000
Cattle & calves	$20,000,000		$20,000,000
Wheat*	$8,000,000		$8,000,000
Horses*		$5,000,000	$5,000,000
Total	**$392,000,000**	**$667,000,000**	**$1,059,000,000**

*Sales totals incomplete due to data suppression by USDA.

More than $943 million of crops were sold in 2007 (88% of sales). Over $128 million of livestock and products were sold by 3,945 farms (12% of sales), a 15 percent decrease in the number of farms selling livestock and 9 percent increase in sales since 2002. Approximately 71 percent (6,553 farms) of the region's farms sold less than $10,000 of products in 2007. Their aggregate sales of more than $13.4 million amounted to about one percent of the region's farm product sales. 896 farms (10%) sold more than $100,000 of products, an aggregate total of over $1 million, about 94 percent of the region's farm product sales.[2] Approximately 66 percent (6,077) of the region's farms reported net losses in 2007, similar to the Oregon average of 65 percent. In 2002, 719 farms received $3.2 million of federal subsidies.

The $1 billion of crops and livestock sold in 2007, represents 24 percent of state agricultural sales. Farm product sales were 23 percent higher than the 2002 level of $869 million. Total farm production expenses were $879 million, an increase of 28 percent over 2002.

Vegetables & Melons

In 2007, 402 farms produced vegetables on 13,833 acres of land, 367 of which sold $46 million of vegetables and potatoes. This was a decrease of 26 percent in the number of farms and an increase of 29 percent in sales over 2002.

Fruits

The Portland region has 1,413 orchards on 29,955 acres of land. A total of 1,530 farms in the region sold fruit, nuts, or berries, for total sales of $139 million. This represents a 12 percent decline in the number of farms and an 84 percent increase in sales over 2002.

Grains, Dry Edible Beans, Oil Crops, and Others

In 2007, 188 of the Portland region's farmers sold 1,239,355 bushels of wheat, mostly winter wheat, raised on 14,079 acres.[3] The region's wheat crop sold for more than $8 million.[4] 106 farms raised

[2] Sales data for Columbia County were suppressed by USDA to protect confidentiality, so these totals do not include sales from that county.

[3] In addition, three Columbia County farmers raised wheat, but their acreage and production totals were suppressed by USDA in an effort to protect confidentiality.

[4] This total does not include sales from Columbia County, which were suppressed by USDA to protect confidentiality.

443,678 bushels of oats on 5,839 acres. This is 41% of Oregon's oat-producing farms. 21 farms in the region produced barley and 10 farms raised corn.[5]

Cattle and Dairy

In 2007, 2,796 farms in the Portland region held an inventory of 63,252 cattle and calves. 2,224 farms sold 29,504 of these cattle for $20 million. 74 farms sold more than $34 million of milk or dairy products.[6] 2,296 farms produced 155,947 dry tons of forage crops (hay, etc.) on 64,080 acres of cropland. Of these, 1,693 farms sold $86 million of forage.[7] In addition, 53 farms produced 76,359 tons of corn silage on 3,394 acres.[8]

Other Livestock and Animal Products

In 2007, 1,104 farms in the Portland region raised laying hens and 777 farms sold $59 million of poultry and eggs.[9] The region has 117 broiler chicken producers with a total inventory of more than 10.9 million birds. Of these, 3.2 million were held in Clackamas County, 7.7 million in Yamhill County, 360 in Columbia County and 300 in Multnomah County.[10]

596 farms sold more than $5 million of horses.[11] 261 farms hold an inventory of 7,263 hogs and pigs and 313 farms sold $1.8 million of hogs and pigs. 650 farms held an inventory of 11,517 sheep, lambs, and goats and sold $932,000 worth.[12]

Nursery, Landscape and Ornamental Crops

In 2007, 1,278 farms sold $608 million of ornamental and nursery crops, by far the highest-ranking product sold by the region's farms. There was a 17 percent decrease in the number of farms, but a 19 percent increase in sales over 2002.[13] 770 farms sold more than $54 million of Christmas trees.[14]

Direct and Organic Sales

In 2007, 1,796 farms in the Portland region sold $12 million of food directly to consumers. This is a 10 percent decrease in the number of farms selling direct (1,999 in 2002) and a 117 percent increase in direct sales ($5.7 million in 2002). Direct sales account for 1.2 percent of the region's farm sales, three times the national average. Farmers in the region make up 29 percent of the farms selling direct and account for 22 percent of Oregon's direct sales ($56 million of direct sales in Oregon in 2007 and $21 million in 2002). Multnomah County farms led the region in direct sales with $4.8 million, an increase of 388% over direct sales in 2002. 249 farms in the region sold organic foods ($21 million of sales) from 6,549 acres. This is 28 percent of Oregon farms (799) selling organic representing 24 percent of state sales ($88 million). 74

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[5] Acreage and production data for Columbia and Multnomah Counties was suppressed by USDA in an effort to protect confidentiality.

[6] Sales data for Columbia and Multnomah Counties were suppressed by USDA to protect confidentiality, so these totals do not include sales from these counties.

[7] Sales data for Columbia County were suppressed by USDA to protect confidentiality, so these totals do not include sales from that county.

[8] Four Columbia County farmers also raised corn for silage, but their acreage and production totals were suppressed by USDA in an effort to protect confidentiality.

[9] Inventory data for Clackamas County was suppressed by USDA in an effort to protect confidentiality.

[10] Inventory data for Washington County farms were suppressed by USDA in an effort to protect confidentiality.

[11] Sales data for Columbia County were suppressed by USDA in an effort to protect confidentiality.

[12] Sales Yamhill County were suppressed by USDA in an effort to protect confidentiality.

[13] Note that sales data from the 32 farms in Columbia County selling nursery crops were suppressed by USDA in an effort to protect confidentiality, so these sales are not included in this total.

[14] Sales data from the 42 farms in Columbia County selling Christmas trees were suppressed by USDA in an effort to protect confidentiality.

farms market through community supported agriculture (CSA) and 697 farms produce added-value products on the farm.

Income

Portland region farmers sell $799 million of products per year (1969-2009 average), spending $740 million to raise them, for an average gain of $59 million each year.[15] In nine of the past forty-one years the farm sector experienced a negative cash flow from raising products (though clearly some individual farms made money).[16] Overall, farm producers have enjoyed gains of $2.5 billion since 1969. However, 66 percent of the region's farms and ranches reported a net loss in 2007.[17]

Portland area farmers and ranchers earned $203 million less by selling products in 1969 than they earned in 2009 (in 2009 dollars). During this time, many livestock producers abandoned farming as a result of low margins. Sales of livestock and related products fell 56 percent, from $249 million in 1969 to $112 million in 2009, while crop income rose 131 percent from $373 million to $862 million. The most steadily increasing cost of production is hired labor, at a cost of $443 million in 2009.

Farmers and ranchers earn another $72 million per year of farm-related income — primarily rental income for land and insurance payments (41-year average for 1969-2009). Federal farm support payments averaged $8 million per year for the region over the same years. Many farm families rely deeply on off-farm income.

Crop income rose 131% from $373 million in 1969 to $862 million in 2009 (2009 dollars). The most steadily increasing cost of production is hired labor, at a cost of $443 million in 2009. Portland region farmers spent an estimated $475 million in 2007 buying inputs that were sourced outside the region. This creates a significant flow of money away from the region.

Expenses

Farm production expenses totaled more than $739 million in 2007 as shown in Table 10. Hired labor makes up more than one third of farm expenses at $301 million, followed by supply purchases ($77 million), feed purchases ($62 million) and depreciation ($62 million).

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[15] Bureau of Economic Analysis

[16] Bureau of Economic Analysis farm income data differ from Agriculture Census data. For Metro Portland, BEA farm income data is lower, while expense figures are also lower, for an overall lower net income. For one thing, BEA data ends in 2009, while USDA data are from 2007. BEA says the major difference between USDA and BEA data sets is that BEA data offer a fuller accounting of depreciation costs, in line with international standards. BEA also says it hopes to update its computer model.

[17] 2007 Agricultural Census

Table 10. Farm Production Expenses, 2007

Expense	Cost
Hired Labor	$301 million
Supply Purchases	$77 million
Feed Purchases	$62 million
Depreciation	$62 million
Seed Purchases*	$52 million+
Fertilizer	$41 million
Contracted Labor	$40 million
Loan Interest	$37 million
Pesticides	$34 million
Gasoline/Fuel/Oil*	$33 million+
Total	**$739 million+**

*Seed purchase and gas/fuel/oil data from Columbia County were suppressed by USDA to protect confidentiality.

Processing and Distribution

The Oregon food processing and distribution sector includes 197 companies not including final food preparation at retail supermarkets or other food-related businesses downstream of the initial food processors.[18] In addition to food processing, the expanded food cluster also includes farm production, packaging and machinery, transportation and warehousing. The sector generates $6.1 billion in added value and directly employs more than 23,000 workers (2006).[19]

Processing

There is no comprehensive study of food processing available for the Portland region. As discussed earlier, five processing sectors make up $7.6 billion or 62.3 percent of processing sales: frozen food manufacturing; dairy; fruit and vegetable canning, pickling, and drying; breweries, wineries, and distilleries; and bakery goods, pasta, and tortilla manufacturing.

In 2009, processing comprised the largest portion of direct agricultural sales in Oregon, with an output of more than $12 billion. The processing sector employed 31,308 people and contributed more than $2 billion in value added expenditures. This sector has an even broader impact on Oregon's economy when looking at direct and indirect expenditures, accounting for more than $20 billion in sales, employing approximately 98,000 people and contributing nearly $7 billion in value added expenditures.

In the Portland region food sector, food manufacturing generates $500 million in personal income, while retail food workers earn about $670 million, and dining service workers earn $1.6 billion. Estimated change in net assets for all households in the region was a combined loss of $9.4 billion in 2009 alone, after several consecutive years of losses (BLS).[20]

Distribution

No existing data source is known that accurately measures internal and external regional food supplies. The minimum level of internal supply can be considered to be direct farmer-to-consumer sales, which is still not totally accurate since direct sales may be distant sales through the internet, or farm-stand sales

[18] Includes companies of at least 20 employees or estimated annual sales of $1 million or more.

[19] Oregon Business Plan (www.oregonbusinessplan.org)

[20] This total was calculated by multiplying the average household change in net assets (reported in surveys of consumers by the Bureau of Labor Statistics Consumer Expenditure survey) by the number of households in the region.

outside of the region. All the same, this is a fairly reliable tally that sets a rough minimum of internal food trade: 1.5 percent of farm sales, and 0.25 percent of the region's consumer market.

Other foods that are not sold directly from farms to consumers are still locally traded, for example, milk sold by Portland region farms to processors in the region who sell that milk inside the region, or meats that are raised, processed, and consumed within the region, and so forth. The difficulty in measuring such items is that once a gallon of milk, for example, enters a processing plant tank, it can no longer be differentiated from other milk in the tank. It cannot be considered a truly local product unless the creamery sells only its products to local consumers. While this may happen to a considerable extent in the Portland area, such milk (or meat or produce) is inherently a commodity that may be traded anywhere.

Similarly, a gallon of milk may be processed in the region, but the farm where it was produced may be distant. A consumer that buys such a gallon of milk has no assurance unless the dairy has committed itself to only sourcing milk from local cows. Many "local" dairies are forced to supplement their milk supply from distant states to keep their plants fully productive as local supplies cycle through strong or lean times.

This study uses a cautious estimate that roughly 90% of the food eaten in the region is sourced outside of the region. This estimate is based upon the experiences of other states, and upon interviews with local purveyors. The most ambitious estimates of local consumption come from Vermont, a state that, like Oregon, has created considerable focus on local foods. Estimates from practitioners in Vermont range from 3% to 8% of food consumed in the state being sourced from local farms. As a first estimate until more detailed work can be accomplished, then 90 percent seems like a useful baseline. Most consumers, even in a state that has a long history of attention to local foods, still buy at stores such as Wal-Mart that are only beginning to source locally. Nor do farmers always gain significant income from such trades that are made through large-scale infrastructure.

Many local food buyers have made even more discriminating choices. Lewis and Clark College, for example, uses a food vendor that buys products from local farmers, supporting sustainable farming practices that keep profits with local growers that can be reinvested into the community. Indeed, the directness of the purchase may be far more significant than food miles as a measure of a strong community-based food economy.

Consumption

The 1.8 million residents of the Portland region received $72 billion of income in 2009. Real personal income has increased more than three-fold since 1969, in part based upon a near-doubling of population. Food consumption has consequently increased, as has the retail price of food — yet farm income has declined.

Portland region residents purchase $4.8 billion of food each year; $2.8 billion to eat at home.[21] Most of this food, an estimated $4.3 billion, is sourced outside of the region. $12 million of food products (1.5 percent of farm cash receipts, and 0.25 percent of local consumer needs) are sold by 1,796 Portland region farmers directly to consumers, but not always to Portland region consumers, since these may include internet sales.

[21] This total was calculated by multiplying the average household expenditure on food (reported in surveys of consumers by the Bureau of Labor Statistics Consumer Expenditure survey) by the number of households in the region.

442,229 residents (26%) earn less than 185 percent of the federal poverty guideline. At this level of income, children qualify for free or reduced-price lunch at school. Thus, in a farm region, more than one out of every four people has uncertainty about their ability to purchase essential foods. These lower-income residents constitute a significant market spending $900 million each year buying food, including $359 million of SNAP benefits (formerly known as food stamps) and additional millions of WIC coupons.

Food-Related Health Conditions (2009)

Approximately 24 percent of Portland region residents reported in 2009 that they eat five or more servings of fruit or vegetables each day. 76% do not. This is a key indicator of health, since proper fruit and vegetable consumption has been connected to better health outcomes. 55 percent of the region's adults report they engage in at least 30 minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20 or more minutes three or more days per week. 60 percent of the region's residents are overweight (36%) or obese (24%) and 7% of the region's residents have been diagnosed with diabetes.[22] Medical costs for treating diabetes and related conditions in the metro region are estimated at $1 billion per year.[23]

Food Consumption in the Portland Region and Selected Areas[24]

Portland region residents purchase $4.8 billion of food each year; $2.8 billion to eat at home. Home purchases break down in the following way: If regional consumers purchased only 15 percent of the food they need for home use directly from farmers in the metro region, without an intermediary, this would produce $417 million of new farm income in the region — an amount equivalent to half of the 2007 farm sales in the region.

Tables 11 through 16 illustrate current food eaten at home and possible target markets for the region and its counties.

Table 11. Portland Region: Markets for Food Eaten at Home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	605
Fruits & vegetables	512
Cereals and bakery products	357
Dairy products	299
Other, including sweets, fats, & oils	1,011

Clackamas County residents purchase $1 billion of food each year; $598 million to eat at home. Home purchases break down in the following way:

[22] Source: Centers for Disease Control.

[23] Source: American Diabetes Association medical cost calculator.

[24] Source: Bureau of Labor Statistics.

Table 12. Clackamas County: Markets for Food Eaten at Home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	130
Fruits & vegetables	110
Cereals and bakery products	77
Dairy products	64
Other, including sweets, fats, & oils	217

Columbia County residents purchase $132 million of food each year; $77 million to eat at home. Home purchases break down in the following way:

Table 13. Columbia County: Markets for Food Eaten at Home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	17
Fruits & vegetables	14
Cereals and bakery products	10
Dairy products	8
Other, including sweets, fats, & oils	28

Multnomah County residents purchase $1.9 billion of food each year; $1.1 billion to eat at home. Home purchases break down in the following way:

Table 14. Multnomah County: Markets for Food Eaten at Home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	245
Fruits & vegetables	207
Cereals and bakery products	144
Dairy products	121
Other, including sweets, fats, & oils	408

Washington County residents purchase $1.4 billion of food each year; $831 million to eat at home. Home purchases break down in the following way:

Table 15. Washington County: Markets for Food Eaten at Home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	181
Fruits & vegetables	153
Cereals and bakery products	107
Dairy products	89
Other, including sweets, fats, & oils	302

Yamhill County residents purchase $263 million of food each year; $153 million to eat at home. Home purchases break down in the following way:

Table 16. Yamhill County: markets for food eaten at home (2009)

Food	$ Millions
Meats, poultry, fish, and eggs	33
Fruits & vegetables	28
Cereals and bakery products	20
Dairy products	16
Other, including sweets, fats, & oils	56

Conclusions and Opportunities

Farmers gain $59 million each year producing food products, spending $475 million buying inputs sourced outside the region, for a total outflow of $416 million from the region's economy. Meanwhile, consumers spend more than $4.3 billion buying food sourced outside the Portland region. Thus, total loss to the region is $4.7 billion of potential wealth *each year*. This loss amounts to nearly five times the value of all farm products now raised in the region. The amount of food imported to the region is greater than the entire food production of the State of Oregon.

The most important dynamic to be addressed with regard to farming in the Portland metro area is the extent to which farmers currently do not produce primary foods for consumers to eat. The overwhelming majority of the region's farm sales ($662 million) are devoted to grass, sod, grass seed, Christmas trees, and ornamental plants. Another $300 million of sales is devoted to the care and feeding of animals that are destined for manufacturers (essentially these animals are raw materials for industrial processing), with no assurance that the products derived from them will meet local consumer needs.

The Portland region produces large quantities of fruits, nuts, and vegetables, which typically are exported as commodities in bulk. Only a small fraction is sold locally. While it may seem like a simple matter to divert the sales of, for example, pears or apples from distant markets to local consumers, this is not as simple as it seems because a well-entrenched infrastructure ensures that exports are favored and local distribution channels may be very small or financially weak. Moreover, the local market may be too small and too scattered to wholly attract the attention of local export-based growers.

The concept of exporting food products is widely understood and practiced. At least 90 percent of food crops currently produced in the region are exported. An additional strategy is import-substitution where actions are taken to substitute local products and services for those currently imported. Both exporting and import-substitution are valid strategies. Import-substitution is not a widely practiced economic development strategy, but seems to have great potential given the size and nature of food imports into the Portland region.

PSU graduate student Mike Mertens, in conducting a study of potential for food production in Clackamas County, Oregon, found that there is significant opportunity to grow a variety if types of local food to substitute for a large portion of currently imported food crops, especially fruits and vegetables. He plans to explore the economic opportunities for localizing a portion of the regional food system in future work.

Early adaptors who focus on import-substitution often begin with high-value products that can be stored easily, since perishable items may spoil. Thus, frozen meats, bottled milk and storable dairy products or high value fruits and vegetables with some shelf-life are typically the first ones to be offered. These foods have often been purchased first by people of high incomes while low-income consumers feel they have little access to these quality foods.

Crops with longer shelf-lives, such as root vegetables and those that cannot be shipped, such as local cane berries and strawberries may find larger regional markets. In addition, because of the relatively large food processing industry in the state there may be opportunities to expand processed products for distribution locally and for export.

One recent trend is exhibited by the growers in the Willamette Valley who have begun to shift away from grass seed production (often as suburban housing starts fell, decimating landscaping markets) toward edible beans and wheat. Farmers hope this wheat will be milled locally, but few local mills exist. Nevertheless, this is a significant break from farm production that is deeply dependent on housing starts and one that ultimately threatens the very near-urban regional base on which farmer's farm, since new housing is often built on urban growth boundary expansions on farm lands.

Data on limited resource growers and production (small farms) shows that farms of all sizes may make important contributions. Small farms may be far more productive per acre (there are farms across the U.S. selling for as much as $100,000 per acre),[25] and are definitely more capable of responding flexibly to changing circumstances, such as rising oil prices, or changes in climate, than larger farms that are more locked into high cost energy consumption, commodity crops and less-flexible production systems.

Yet small farms also have significant limitations. Without co-operative equipment, transportation, processing and distribution schemes, small farms will have little market power and are unlikely to produce enough food for the regional population. Large farms may require years to ramp up from smaller operations, but they promise more stable and diverse production over longer periods of time. An ideal food system would foster both small and large farms and would find ways where larger farms will use their size to create benefits for the small, such as participating in joint distribution or purchasing inputs co-operatively, rather than forcing small farms into competition.

Key changes will also need to be made if the Portland region is to have more self-reliant farms. Season extension through solar-heated greenhouses, inexpensive hoop houses (high tunnels) or cold frames will be essential to increase productivity. Increasing the efficiency of transportation from farmer to consumer will be critical as oil prices escalate. Diversifying cropping and livestock production and making more use of crop rotation and both animal and green manures, will help build soil fertility and reduce runoff. Fueling a food system on green energy (biofuels, solar, wind and ground source thermal energy) may provide a competitive advantage relative to export-based agriculture as oil supplies wane.

There are two key elements to the food system of the future than cannot be addressed solely at the farm level. First, the essential component of a strong Portland regional food system will be infrastructure that creates local food trade efficiencies. Our current incentive system, including tax credits and public investment, has favored long-distance transport of food and other commercial items. If we apply similar incentives to promote the growth of regional food systems, through neighborhood and county food storage areas, root cellars, community kitchens for small-scale processing and human-powered distribution networks, farms of many sizes may thrive. The key public investment appears to create this supportive infrastructure.

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[25] Based on farm interviews with producers across the nation, some of whom are reluctant to have their names publicized. One Georgia farm reports sales of $100,000 per acre, but does not wish to be identified (interview with farm manager). The STOGROW student-run farm at St. Olaf College reported sales of $25,000 on a one-quarter acre farm in an interview with the former farm manager. Growing Power in Milwaukee claims sales of $200,000 per acre (personal communication from staff). Greensgrow Gardens in Philadelphia sells $900,000 of products from a one-acre farm in Central City Philadelphia, but much of these sales are brokered from nearby nurseries and produce farms.

Second, policy should help create clusters of businesses that develop mutual dependency. For example, the Columbus, Ohio ice cream maker, Jeni's Splendid Ice Creams, refuses to expand production unless their milk supplier, Snowville Creamery, has sufficient capacity to expand in kind. Oregon has long been a leader in fostering collaborative networks and could be a national leader in fostering such business clusters.

A final need of the regional food system is long-term sustainability and resiliency. To achieve sustainability the regional food system should support the Triple Bottom Line (Ecology, Community, and Economy). Farms that do business from the Triple Bottom Line will create mutual trust and respect within the region. New technology can serve as the servant of these social, economic and ecological purposes. Regional investment funds will be required to ensure that local visions can be backed with solid commitments of capital and ensure that interest payments will recycle back into the Portland region to continue meeting local challenges.

Appendix A
Agriculture Census 2007: County Highlights

Clackamas County

- 3,989 farms, a 15% decrease since 2002.
- 182,743 acres in farms, a decrease of 15% since 2002.
- $397 million of products sold by farms, an increase of 20% over 2002.
- Crop sales totaled $335 million (84% of sales).
- Livestock sales totaled $62 million (16% of sales).
- Government payments to farmers totaled $222,000, a decrease of 26% since 2002.
- The most prevalent farm size (by acres) is farms of 10-49 acres, with 1,770 (44% of all farms).
- Next most prevalent farm size was 1-9 acres, with 1,506 farms.
- Clackamas County ranks second in Oregon for sales of farm products.
- The county also ranks second in the state for sales of crops.
- Ranks first in Oregon, and first in U.S., for sales of Christmas trees, with $47 million.
- Ranks first in the state for acreage of Christmas trees, with 23,295.
- Ranks 1st in Oregon for acreage of nursery stock, with 12,859.
- Ranks first in Oregon for sales of poultry and eggs, with $41 million.
- Ranks 1st in the state for inventory of laying hens.
- Ranks first in Oregon for inventory of pullets to produce laying hen stock.
- Ranks 1st in Oregon for sales of horses, with $2.3 million.
- Ranks 2nd in the state for sales of hogs and pigs, with $994,000.
- Ranks 4th in the state for inventory of mink.
- Ranks 4th in Oregon for acres devoted to hazelnuts.
- Ranks sixth in Oregon for sales of vegetables, with $19 million.
- Ranks 7th in the state for sales of fruits, nuts, and berries, with $28 million.
- Ranks 9th in Oregon for aquaculture sales, with $516,000.
- Cattle and calf sales totaled $8 million.
- The most prevalent farm size (by sales) is farms selling less than $1,000, with 1,242 (31% of the county's farms).

Columbia County

- 805 farms, n 8% decrease since 2002.
- 57,758 acres in farms, a decrease of 7% since 2002.
- Sales of farm products for county farms were not released by USDA in an effort to protect confidentiality. Total farm product sales had been $28.7 million in 2002.
- Columbia County ranks 26th in Oregon for farm product sales.
- The county ranks second in Oregon, and fourth in the U.S., for acreage devoted to short-rotation woody crops (shrubs and other nursery items).
- Government payments to farmers totaled $181,000, an increase of 52% over 2002.
- The most prevalent farm size (by acres) is farms of 10-49 acres, with 396 (nearly half of all farms).
- Columbia County ranks 3rd in Oregon for inventory of rabbits, with 3,630.
- Ranks 6th in state for inventory of laying hens, with 5,944.
- County farms and ranches hold an inventory of 10,679 cattle and calves.

- Ranks 7th in Oregon for sales of nursery and ornamental crops, but sales were not reported by USDA.
- Ranks 9th in Oregon for acres of nursery stock.
- Ranks 10th in state for sales of, and acreage devoted to, Christmas trees.
- The most prevalent farm size (by sales) is farms selling less than $1,000, with 245 (30% of the county's farms).

Marion County

- 2,670 farms, a 17% increase since 2002.
- 307,647 acres in farms, a decrease of 10% since 2002.
- $587 million of products sold by farms, an increase of 36% over 2002.
- Crop sales totaled $485 million (83% of sales).
- Livestock sales totaled $102 million (17% of sales).
- Government payments to farmers totaled $1.0 million, an increase of 15% over 2002.
- The most prevalent farm size (by acres) is farms of 10-49 acres, with 1,031 (39% of all farms).
- Marion County is the largest farm producer in the state of Oregon, ranked by sales.
- The County is also ranks 22nd in the U.S. for sales of crops.
- Marion County ranks fourth in Oregon for sales of livestock and related products.
- Ranks 1st in Oregon, and 7th in the U.S., for sales of nursery and ornamental crops, with $244 million in sales (42% of county farm products sales).
- Ranks first in the state for sales of hogs and pigs, with $1.6 million.
- Ranks first in Oregon, and 3rd nationally, for sales of mink and their pelts.
- Ranks 2nd in the state, and 6th in the U.S., for sales of forage crops, with $117 million.
- Ranks 2nd in Oregon, and 3rd in the U.S., for sales of Christmas trees, with $20 million.
- Ranks second in the state, and second in the nation, for acreage devotes to grass seed.
- Ranks 2nd in Oregon for acreage devoted to vegetables, with 25,012.
- Ranks 2nd in the state, and 2nd in the U.S., for acreage devoted to Christmas trees, with 13,794.
- Ranks second in Oregon, and third in the U.S., for acres of nursery stock, with 11,531.
- Ranks 2nd in the state for sales of poultry and eggs, with $28 million.
- Ranks second in Oregon for inventory of laying hens.
- Ranks 2nd in the state for inventory of pullets to produce laying hen stock.
- Ranks 3rd in Oregon for sales of fruits, nuts, and berries, with $57 million.
- Ranks 3rd in the state for sales of milk and dairy products, with $57 million.
- Ranks 4th in Oregon for inventory of broiler chickens, with 523,501.
- Ranks fourth in the state for sales of vegetables, with $43 million.
- Ranks 9th in Oregon for sales of horses, with $677,000.
- The most prevalent farm size (by sales) is farms selling less than $1,000, with 750 (28% of the county's farms).

Multnomah County

- 563 farms, a 21% decrease since 2002.
- 28,506 acres in farms, a decrease of 17% since 2002.
- $84 million of products sold by farms, an increase of 25% over 2002.
- Crop sales totaled $82 million (97% of sales).
- Livestock sales totaled $2 million (3% of sales).

- Government payments to farmers totaled $227,000, an increase of 285% over 2002.
- The most prevalent farm size was farms of 10-49 acres, with 240 (43% of all farms).
- Ranks 4th in Oregon and 11th in U.S. for acreage of nursery stock, with 4,127.
- Ranks 5th in state for sales of nursery and ornamental crops, with $60 million.
- Ranks sixth in state for land in berries, with 1,178 acres.
- Ranks 8th in Oregon for sales of vegetables, with $12 million.
- Cattle and calf sales totaled $852,000.
- Hog sales totaled $11,000.
- The most prevalent farm size (by sales) is farms selling less than $1,000, with 122 (22% of the county's farms).

Washington County

- 1,761 farms, a 7% decrease since 2002.
- 127,984 acres in farms, a decrease of 2% since 2002.
- $311 million of products sold by farms, an increase of 34% over 2002.
- Crop sales totaled $295 million (95% of sales).
- Livestock sales totaled $16 million (5% of sales).
- Government payments to farmers totaled $809,000, a decrease of 26% from 2002.
- The most prevalent farm size was 10-49 acres, with 716 (41% of all farms).
- Washington County ranks 5th in Oregon for sales of farm products.
- The county ranks 3rd in the state for crop sales.
- Ranks 3rd in Oregon, and 12th in the U.S., for sales of nursery and ornamental crops, with $199 million.
- Ranks 3rd in Oregon, and 3rd in the U.S., for acreage devoted to hazelnuts, with 5,608.
- Ranks third in the state, and 6th in the nation, for acreage of nursery stock, with 5,106.
- Ranks 4th in Oregon for sales of fruits and nuts, with $53 million.
- Ranks fourth in the state for sales of hogs and pigs, with $466,000.
- Ranks 5th in Oregon for sales of horses, with $989,000.
- Ranks 7th in state, and 8th in the U.S., for acreage devoted to grass seed, with 30,411.
- Ranks 7th in Oregon for inventory of broiler hens.
- Ranks 8th in Oregon for acres of wheat, with 9,752.
- Ranks eighth in Oregon for sales of grains, with $8 million.
- Ranks eighth in state for inventory of pheasants.
- Ranks 8th in state for sales of Christmas trees, with $3.2 million of sales.
- Ranks eighth in Oregon for sales of poultry and eggs, with $588,000.
- Ranks 9th in state for inventory of laying hens, with 4,821.
- Sales of forage crops totaled $25 million.
- Sales of milk and dairy products totaled $7 million.
- Vegetable sales totaled $7 million.
- The most prevalent farm size (by sales) was farms selling less than $1,000, with 487 (28% of the county's farms).

Yamhill County

- 2,115 farms, a 9% decrease since 2002.
- 180,846 acres in farms, a decrease of 8% since 2002.

- $278 million of products sold by farms, an increase of 33% over 2002.
- Crop sales totaled $230 million (83% of sales).
- Livestock sales totaled $47 million (17% of sales).
- Government payments to farmers totaled $1.8 million, an increase of 76% over 2002.
- The most prevalent farm size was farms of 10-49 acres, with 1,012 (48% of all farms).
- 31 farms worked more than 1,000 acres.
- Yamhill County ranks 7th in Oregon for sales of farm products.
- Ranks 1st in state for inventory of broiler hens, with 1.3 million.
- Yamhill County ranks first in the U.S. for acreage of hazelnuts, with 7,574.
- Ranks 1st in state for acreage of grapes, with 5,888.
- Ranks 3rd in Oregon for sales of poultry and eggs, with $17 million.
- Ranks third in state for sales of horses, with $1.5 million.
- Ranks 4th in state, and 5th in U.S., for acreage of grass seed, with 49,684.
- Ranks fourth in Oregon for sales of nursery and ornamental crops, with $121 million (43% of sales).
- Ranks fourth in state for sales of forage crops, with $45 million.
- Ranks fifth in Oregon for sales of fruits and nuts, with $51 million.
- Ranks 5th in Oregon for sales of milk and dairy products, with $21 million.
- Ranks 6th in state for sales of hogs and pigs, with $303,000.
- Ranks 7th in Oregon for sales of Christmas trees, with $3.3 million.
- Ranks 8th in state for acreage of vegetables, with 4,000.
- Ranks 8th in Oregon for inventory of laying hens, with 5,037.
- The most prevalent farm size (by sales) is farms selling less than $1,000, with 622 (29% of the county's farms).

Clark County, Washington

- 2,101 farms, a 32% increase since 2002.
- 78,359 acres in farms, an increase of 11% since 2002.
- $53 million of products sold by farms, a decrease of 3% over 2002.
- Crop sales totaled $22 million (42% of sales).
- Livestock sales totaled $31 million (58% of sales).
- Government payments to farmers totaled $115,000, a decrease of 44% since 2002.
- The most prevalent farm size was farms of 10-49 acres, with 1,043 (50% of all farms).
- Next most prevalent farm size was 1-9 acres, with 705.
- 12 farms had more than 500 acres.
- Clark County farms ranked first in Washington State for the inventory of rabbits.
- Ranks 2nd in Washington State for acreage devoted to Christmas trees, with 1,176.
- Ranks 3rd in the state for sales of Christmas trees, with $3 million.
- Ranks 3rd in Washington State for sales of sheep and goats, with $342,000.
- Ranks fourth in state for acreage of berries, with 1,335.
- Ranks eighth in Washington State for sales of poultry and eggs, with $10.6 million.
- Ranks 9th in state for acreage planted to corn for silage, with 1,883 acres.
- Ranks 9th in state for acreage of oats, with 405.
- Ranks 10th in Washington State for sales of horses, with $917,000.

- 1,793 (85%) farms sold less than $10,000 of products.
- 53 farms sold more than $100,000 of products.

Appendix B
State of Oregon Agricultural Data

Agriculture Census 2007: Oregon Highlights

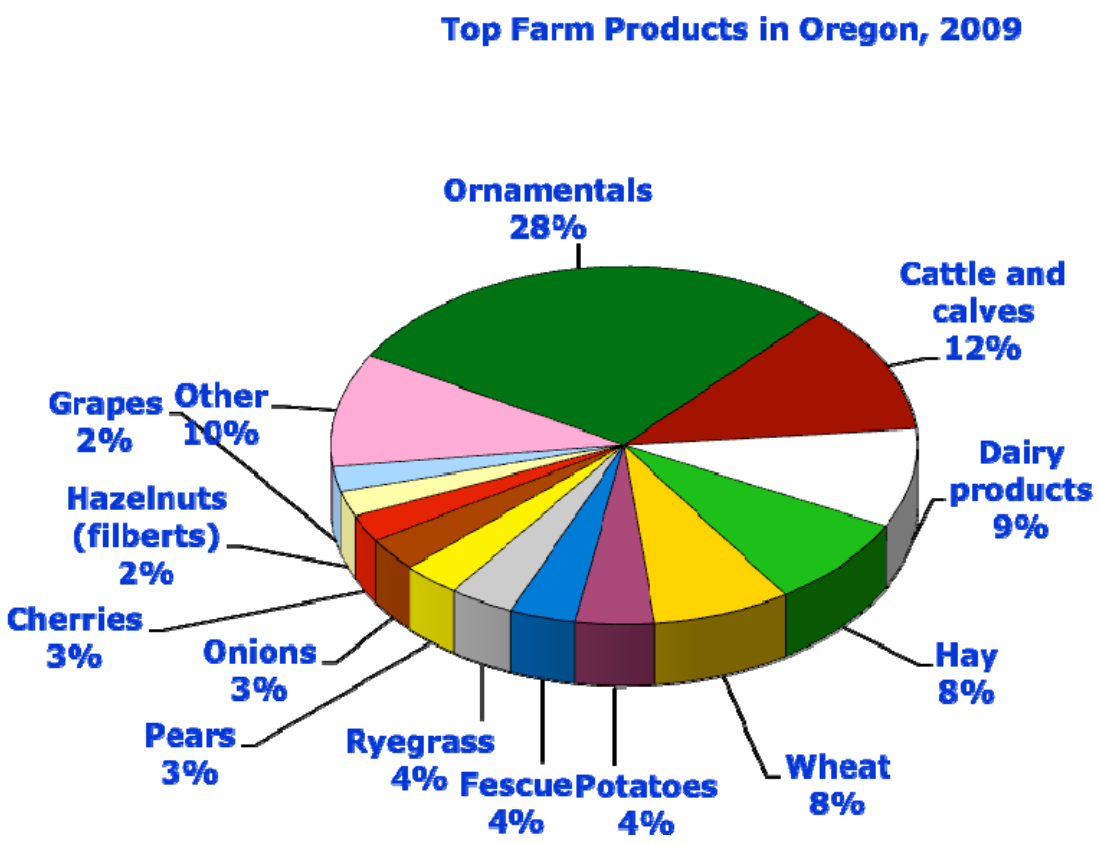
- Ranks first in the nation in sales of Christmas trees, with $117 million of sales.
- Ranks 1st in U.S. for acreage devoted to Christmas trees, with 66,816.
- Ranks 1st in nation for acreage devoted to grass and sod, with 557,000 acres.
- Ranks 3rd in U.S. for sales of nursery and ornamental crops, with $989 million.
- Ranks 3rd in nation for sales of forage crops, with $698 million.
- Ranks 4th in U.S. for sales of fruits and nuts, with $516 million.
- Ranks 9th in nation for sales of sheep and goats with $21 million.
- Ranks 9th in U.S. for acreage devoted to vegetables, with 149,665.
- Ranks 10th in U.S. for sales of vegetables, with $339 million.
- Oregon had 38,553 farms in 2007, slightly less than its 40,033 farms in 2002.
- Total sales of farm products totaled $4.4 billion, a 37% increase over 2002.
- $3.0 billion of farm sales (68%) came from selling crops.
- $1.4 billion of farm sales (32%) came from selling livestock and products.
- Government payments increased 47% over 2002 levels, to $76 million.
- The most prevalent farm size was 10-49 acres, with 14,000 farms.
- The next most prevalent farm size was 1-9 acres, with 9,600.
- The third most prevalent farm size was 50-179 acres, with 7,500 farms.
- 2,500 farms managed more than 1,000 acres.
- 11,763 farms sell less than $1,000 of products.
- 4,678 farms sell more than $100,000 of products.
- After subsidies are taken into account, 65% of Oregon farms reported to the Agriculture Census that their operation suffered a net loss in 2007.
- 6,274 state farms earned $56 million selling products directly to consumers. This is a 2% decrease in the number of farms, and a 163% increase in direct sales.
- Direct food sales from farms accounted for more value than the state's 14th-largest product, chicken eggs.
- 933 farms devoted 92,405 acres to organic production. This included 45,834 acres of harvested cropland, 41,844 acres of pastureland, and 16,175 acres on 470 farms undergoing organic conversion.
- 799 of these organic farms sold $88 million of organic products, including $42 million of crops (this may include ornamental and greenhouse crops), $3 million of livestock and poultry, and $43 million of products from livestock and poultry (such as milk or eggs).
- 3,799 farms receive irrigation water from the U.S. Bureau of Reclamation.
- 311 farms market through community supported agriculture (CSA).
- 2,807 state farms produce value-added products.
- 9,327 farms use conservation methods.
- 9,694 farms practice rotational management or intensive grazing.
- 631 farms generate energy or electricity on the farm.

Top Oregon Farm Products, 2009 (Economic Research Service)

At $56 million, direct sales from farmers to consumers amounts to more value than sales of the 14th-ranked product, chicken eggs.

Rank	Product	Sales ($ millions)
1	Greenhouse/nursery	972.1
2	Cattle and calves	405.7
3	Dairy products	305.1
4	Hay	282.9
5	Wheat	259.7
6	Potatoes	149.3
7	Fescue	123.6
8	Ryegrass	122.9
9	Pears	107.3
10	Onions	104.0
11	Cherries	83.7
12	Hazelnuts (filberts)	79.4
13	Grapes	76.8
14	Chicken eggs	47.2
15	Hops	43.2
16	Mint	43.0
17	Blueberries	37.9
18	Corn, sweet	37.6
19	Blackberry group	32.9
20	Apples	26.5
21	Beans, snap	24.3
22	Corn	23.3
23	Bluegrass, kentucky	19.9
24	Sugar beets	16.6
Total		**3,387.3**

Broiler hens were also listed among Oregon's top 25 products, but sales figures for these products were not released by ERS to protect confidentiality.



Source: USDA Economic Research Service

Farm Types in Oregon (2007 Census of Agriculture)
Only 14 percent of farms in Oregon (5,293 of 38,553) are considered farms of considerable means, according to the Census of Agriculture's typology (this includes farms marked as "higher sales," large family farms, very large family farms, or non-family farms, below). USDA reports this data for the state as a whole, but not for individual counties in the study area.

Farm Types by Category, State of Oregon

Farm Type	Number	Percent
Limited resource farms	5,503	14%
Retirement farms	9,126	24%
Residential/lifestyle farms	13,807	36%
Farm occupation/lower sales	4,824	13%
Farm occupation/higher sales	1,181	3%
Large family farms	899	2%
Very large family farms	1,246	3%
Non-family farms	1,967	5%
Totals	**38,553**	**100%**

The following farm definitions are used by USDA in creating the tables in this section:

Rural residence farms. Specific typologies included in rural residence farms are limited-resource,

retirement, and residential lifestyle farms.

- Limited-resource farms. Small farms with sales less than $100,000 in 2003 and low operator household income in 2003 and 2004. Household income is low if it is less than the poverty level in both 2003 and 2004 or if it is less than half the county median income both years.
- Retirement farms. Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).
- Residential/lifestyle farms. Small farms whose operators report they had a major occupation other than farming (excludes limited-resource farms with operators reporting a non-farm major occupation).

Intermediate farms. Includes farming occupation/lower-sales and farming occupation/higher-sales farms.

- Farming occupation/low-sales. Small farms with sales less than $100,000 whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).
- Farming occupation/high-sales. Small farms with sales between $100,000 and $249,999 whose operators report farming as their major occupation.

Commercial farms. Includes large, very large, and nonfamily farms.

- Large family farms. Farms with sales between $250,000 and $499,999.
- Very large family farms. Farms with sales of $500,000 or more.
- Nonfamily farms. Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers.

The data shows that only 109 farms in the state are owned and operated by a farmer under 25 years of age, while 29 percent of Oregon farms are operated by someone over 65 years.

Farm Types by Age of Owner, State of Oregon

	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 & over
Limited resource farms	27	185	512	1,322	1,615	1,842
Retirement farms	0	0	47	298	2,620	6,161
Residential/lifestyle farms	24	687	2,193	5,389	4,434	1,080
Farming occupation/lower sales	33	293	673	1,555	1,423	847
Farming occupation/higher sales	9	113	130	351	362	216
Large family farms	2	51	94	267	280	205
Very large family farms	1	60	128	416	402	239
Non-family farms	13	106	308	47	529	464
Totals	**109**	**1,495**	**4,085**	**10,145**	**11,665**	**11,054**

This categorization of farms shows that limited resource farms may sell as much as $99,000 of products, and that even lifestyle or retirement farms may sell well over $100,000. Conversely, non-family farms may sell very low amounts.

Farm Types by 2007 Sales, State of Oregon

Farm Type	All farms	Less than $1,000	$1,000 to $2,499	$2,500 to $4,999	$5,000 to $9,999	$10,000 to $24,999
Limited resource	5,503	2,081	979	786	648	554
Retirement	9,126	3,162	1,444	1,304	1,112	996
Lifestyle farms	13,807	5,034	2,654	2,004	1,554	1,284

Farms/lower sales	4,824	1,128	500	459	507	725
Farms/higher sales	1,181	-----	-----	-----	-----	-----
Large family farms	899	-----	-----	-----	-----	-----
Very large family farms	1,246	-----	-----	-----	-----	-----
Non-family farms	1,967	358	110	98	113	171
Total	**38,553**	**11,763**	**5,687**	**4,651**	**3,934**	**3,730**

Farm Type	$25,000 to $49,999	$50,000 to $99,999	$100,000 to $249,999	$250,000 to $499,999	$500,000 to $999,999	$1 million or more
Limited resource	299	156	-----	-----	-----	-----
Retirement	526	332	250	-----	-----	-----
Lifestyle farms	586	434	257	-----	-----	-----
Farms/lower sales	728	777	-----	-----	-----	-----
Farms/higher sales	-----	-----	1,181	-----	-----	-----
Large family farms	-----	-----	-----	899	-----	-----
Very large family farms	-----	-----	-----	-----	642	604
Non-family farms	133	139	251	178	178	238
Total	**2,272**	**1,838**	**1,939**	**1,077**	**820**	**842**

Note: Category names have been shortened in this chart to provide space for data entries.

Census of Agriculture data also show that limited-resource farms may be quite large and that "large" farms by sales may be very small in acreage.

Farm Type by Acreage, State of Oregon

Farm Type	1 to 9	10 to 49	50 to 69	70 to 99	100 to 139	140 to 179
Limited resource	1,576	2,242	320	308	251	181
Retirement	2,085	3,743	580	623	448	397
Lifestyle farms	4,583	5,762	723	663	471	361
Farms/lower sales	966	1,631	257	320	271	261
Farms/higher sales	49	155	65	72	47	52
Large family farms	19	61	36	54	45	32
Very large family farms	14	78	33	35	54	46
Non-family farms	254	470	117	107	112	88
Total	9,546	14,142	2,131	2,182	1,699	1,418

Farm Type	180 to 219	220 to 259	260 to 499	500 to 999	1,000 to 1,999	2,000 or more
Limited resource	99	71	208	138	48	61
Retirement	155	135	408	277	56	119
Lifestyle farms	208	121	367	277	124	147
Farms/lower sales	139	108	333	197	158	183
Farms/higher sales	51	42	198	120	102	228
Large family farms	27	19	120	158	86	242
Very large family farms	35	41	157	202	195	356
Non-family farms	82	61	155	162	129	230

Total	796	598	1,946	1,531	998	1,566

Note: Category names have been shortened in this chart to provide space for other entries.

Farms of all sizes produce all crops, including grains.

Farm Type by Crops Produced, State of Oregon

Farm Type	Grains & Oilseeds	Vegetables & Melons	Fruits & Nuts	Nursery & Ornamentals	Other Crops
Limited resource	32	132	389	527	914
Retirement	86	125	903	732	1,953
Lifestyle farms	94	196	1,178	1,207	2,404
Farms/lower sales	116	98	461	462	890
Farms/higher sales	151	32	200	148	273
Large family farms	110	36	146	92	256
Very large family farms	138	105	127	184	326
Non-family farms	84	70	362	310	401
Total	**811**	**794**	**3,766**	**3,662**	**7,417**

No large family farms produce poultry or eggs, nor do very large family farms raise hogs.

Farm Type by Livestock or Derivatives Produced, State of Oregon

Farm Type	Beef Cattle	Milk & Dairy	Hogs & Pigs	Poultry & Eggs	Sheep & Goats
Limited resource	1,757	36	57	159	412
Retirement	3,089	43	76	209	500
Lifestyle farms	4,661	65	196	369	949
Farms/lower sales	1,535	27	61	104	191
Farms/higher sales	300	29	6	1	4
Large family farms	183	42	6	-----	6
Very large family farms	160	144	-----	29	4
Non-family farms	386	46	23	20	37
Total	**12,071**	**432**	**425**	**891**	**2,103**

Cattle Feedlots and Aquaculture or Other Animals, State of Oregon

Farm Type	Cattle Feedlots	Aquaculture & Other
Limited resource	100	988
Retirement	175	1,235
Lifestyle farms	368	2,120
Farms/lower sales	79	800
Farms/higher sales	12	25
Large family farms	9	13
Very large family farms	12	17
Non-family farms	23	205
Total	**778**	**5,403**

As mentioned above, 65 percent of the farms in Oregon reported a net loss when responding to the Census of Agriculture in 2007. A more precise set of data covering the net gains and losses is shown below. Gains and losses occurred that were both large and small.

	Total
Net cash farm income (number of farms)	38,553
Net cash farm income ($1,000)	903,728
Farms with **net gains** (number)	13,455
Gain of:	
Less than $1,000	1,483
$1,000 to $4,999	2,886
$5,000 to $9,999	1,596
$10,000 to $24,999	2,175
$25,000 to $49,999	1,580
$50,000 or more	3,735
Farms with **net losses** (number of farms)	25,098
Loss of:	
Less than $1,000	2,362
$1,000 to $4,999	9,486
$5,000 to $9,999	5,142
$10,000 to $24,999	4,815
$25,000 to $49,999	1,970
$50,000 or more	1,323

This data is further analyzed by the Census of Agriculture to show net gains and losses by size of farm, measured both by the number of acres and the amount of sales. These data show, that while of course large farms earn more money overall than small ones, there are both profitable small farms, and large farms that lose money. Only the smallest farms, those from one to nine acres, showed losses for the entire category.

Looking at the net cash income by sales, however, shows some different trends. All of the categories of farms with sales less than $25,000 show an overall loss for the category. This suggests that these small farms are highly dependent on off-farm jobs, and are perhaps arranging their finances to show a net loss in an effort to reduce taxes. Surprisingly, farms with less than $10,000 of sales lost a combined total of $98 million.

Three-fourths of the net cash income earned by Oregon farms was earned by farms selling more than $1 million of products, yet losses occurred even for these largest of farms.

Farms with Net Gains and Losses by Acreage of Farm, State of Oregon

	1 to 9	**10 to 49**	**50 to 69**	**70 to 99**	**100 to 139**	**140 to 179**
Net cash farm income (farms)	9,546	14,142	2,131	2,182	1,699	1,418
Net cash farm income ($1,000)	-18,427	10,207	23,106	30,049	26,791	21,501
Farms with **net gains** (number of farms)	2,212	3,668	775	903	695	653
Gain of:						
Less than $1,000	504	622	98	80	32	43

$1,000 to $4,999	818	1117	175	163	134	141
$5,000 to $9,999	325	513	124	131	105	97
$10,000 to $24,999	318	617	146	180	145	105
$25,000 to $49,999	116	366	65	142	90	110
$50,000 or more	131	433	167	207	189	157
Farms with **net losses** (number of farms)	7,334	10,474	1,356	1,279	1,004	765
Loss of:						
Less than $1,000	903	1,017	112	94	80	37
$1,000 to $4,999	3,583	4,138	407	395	226	192
$5,000 to $9,999	1,419	2,347	312	261	215	167
$10,000 to $24,999	1,067	2,016	297	335	275	184
$25,000 to $49,999	284	679	150	127	118	118
$50,000 or more	78	277	78	67	90	67

	180 to 219	**220 to 259**	**260 to 499**	**500 to 999**	**1,000 to 1,999**	**2,000 or more**
Net cash farm income (farms)	796	598	1,946	1,531	998	1,566
Net cash farm income ($1,000)	26,046	20,495	137,029	190,647	162,887	273,397
Farms with **net gains** (number of farms)	378	285	1,112	942	711	1,121
Gain of:						
Less than $1,000	26	8	21	25	11	13
$1,000 to $4,999	39	31	141	66	34	27
$5,000 to $9,999	41	29	100	78	31	22
$10,000 to $24,999	78	71	159	152	92	112
$25,000 to $49,999	62	55	197	122	125	130
$50,000 or more	132	91	494	499	418	817
Farms with **net losses** (number of farms)	418	313	834	589	287	445
Loss of:						
Less than $1,000	19	19	52	18	8	3
$1,000 to $4,999	104	69	197	104	34	37
$5,000 to $9,999	86	50	123	87	38	37
$10,000 to $24,999	95	80	202	125	60	79
$25,000 to $49,999	67	39	130	98	62	98
$50,000 or more	47	56	130	157	85	191

Farms with Net Gains and Losses by Sales, State of Oregon

	Less than $1,000	**$1,000 to $2,499**	**$2,500 to $4,999**	**$5,000 to $9,999**	**$10,000 to $24,999**	**$25,000 to $49,999**
Net cash farm income (farms)	11,763	5,687	4,651	3,934	3,730	2,272
Net cash farm income ($1,000)	-98,108	-32,077	-25,011	-19,041	-10,470	6,846
Farms with **net gains** (number of farms)	1,064	767	1,214	1,599	2,026	1,516
Gain of:						
Less than $1,000	236	407	413	254	125	24
$1,000 to $4,999	246	227	655	902	579	160
$5,000 to $9,999	151	49	62	316	638	237
$10,000 to $24,999	197	47	49	64	577	723
$25,000 to $49,999	140	20	23	45	74	330

$50,000 or more	94	17	12	18	33	42
Farms with **net losses** (number of farms)	10,699	4,920	3,437	2,335	1,704	756
Loss of:						
Less than $1,000	797	653	493	251	118	22
$1,000 to $4,999	4,461	2,292	1,362	730	406	132
$5,000 to $9,999	2,395	999	717	524	304	125
$10,000 to $24,999	2,052	737	614	526	493	181
$25,000 to $49,999	685	186	192	222	261	165
$50,000 or more	309	53	59	82	122	131

	$50,000 to $99,999	**$100,000 to $249,999**	**$250,000 to $499,999**	**$500,000 to $999,999**	**$1,000,000 or more**
Net cash farm income (farms)	1,838	1,939	1,077	820	842
Net cash farm income ($1,000)	29,648	80,711	106,700	176,139	688,392
Farms with **net gains** (number of farms)	1,364	1,528	887	714	776
Gain of:					
Less than $1,000	13	9	-----	1	1
$1,000 to $4,999	78	36	2	1	-----
$5,000 to $9,999	78	45	12	4	4
$10,000 to $24,999	292	167	38	11	10
$25,000 to $49,999	540	289	69	39	11
$50,000 or more	363	982	766	658	750
Farms with **net losses** (number of farms)	474	411	190	106	66
Loss of:					
Less than $1,000	17	7	4	-----	-----
$1,000 to $4,999	57	39	4	1	2
$5,000 to $9,999	43	23	7	4	1
$10,000 to $24,999	98	74	24	13	3
$25,000 to $49,999	117	81	46	8	7
$50,000 or more	142	187	105	80	53

Appendix C
Key Data Sources

Bureau of Economic Analysis data on farm production balance
http://www.bea.doc.gov/bea/regional/reis/

Food consumption estimates from Bureau of Labor Statistics Consumer Expenditure Survey
http://www.bls.gov/cex/home.htm

U.S. Census of Agriculture
http://www.nass.usda.gov/census/

USDA/Economic Research Service food consumption data:
http://www.ers.usda.gov/data/foodconsumption/

USDA/ Economic Research Service farm income data:
http://ers.usda.gov/Data/FarmIncome/finfidmu.htm

Centers for Disease Control: Behavior Risk Factors Surveillance System
BRFSS http://apps.nccd.cdc.gov/brfss-smart/

National Association of County and City Health Officials (NACCHO)
Big Cities Health Inventory http://www.naccho.org/

APPENDIX D: SARE Core Farmer Interviews

June 10, 2011

The Portland metropolitan area is well known nationwide for its cutting edge sustainability vision, urban development and farmland protection framework. The region has a large number of productive small farms that are located within and near urban areas. There is a growing interest in, and support for, locally grown, sustainable food. This interest is driven by rising concerns over public health, food security, transportation costs, climate change, economic turmoil and the search for a more community-based, sustainable lifestyle. There is growing support for farmers markets, community supported agriculture, community gardens, local healthy food school programs and institutional purchases of fresh, locally grown produce. Increasing locally-sourced fruits and vegetables is also a goal of the Regional Food Bank.

Western Sustainable Agriculture Research and Education (SARE) is funding a study to examine key agricultural trends, identify producer needs and define strategies to strengthen the local food production system. The goals of the study are to:

- Define the Portland Metropolitan Foodshed, identify related agricultural and economic trends and develop a needs assessment based on input from producers and other stakeholders.
- Assemble a regional toolkit of strategies to support evolution of a sustainable Portland Metropolitan Foodshed.
- Work with the City of Damascus, Oregon to test the toolkit on a local level.
- Develop a research and educational program that supports these goals and supports small and medium farmers in the region.

As part of this study, in-depth interviews were conducted with five core farmers in the Damascus area. Along with an on-line survey distributed to small and medium farmers, this summary of core farmer interviews describes a range of farming operations and will be used to show the impacts of urban development on small and mid sized farming operations. The following is a compilation of interview responses.

1) What are your aspirations for your farm?

- In the short-term, keep farming at this location. This is the centralized facility for packing and distribution. Possibly try some "tunneling" (hoop houses solar heated). A shorter-term possibly is growing landscaping plants: Japanese maple, small ornamental trees, small scale food processing flash freezing, bagging of fresh produce, cash and carry. Longer-term is uncertain. Grandfather owns the property. It would be up to me and my and siblings (4 sisters) to determine the use and ownership of the land. Looking to move out of town. Too many neighbor and regulation conflicts; want to sell the property. Can continue to provide high quality produce and preserve relationship with customers on organic produce and name reputation and recognition for Siri & Son Farms. Land conservation measures and farm operation measures for organic farming certification are another aspiration.
- A complete closed-loop food system with major local jobs and income. Sustainability, biodiversity, feed the soil, education center for composting, multiple farm related income streams.
- Replace aging infrastructure; transfer to in-family ownership and production; expand as an educational center for blueberries; grow a few more cane crops; produce jams; increase fresh

market sales – possibly with other neighbor cooperation; expand nursery plant sales.

- Leave a portion of the farm as a testament to parents and family in Damascus. Continue the partnership with Mercy Corps. Develop programs with OSU Research. Allow son to continue farming if he desires (he's 22 yrs old) and continue our small-scale sustainable farming heritage. Have enough financial support to retire, by selling some land, if need be.

How is that vision different from your current operations?

- Currently have main our operations on the property. Office, farming, equipment storage, washing areas, truck/tractor warehouse, coolers, storage.
- It does not pay for itself yet. Wife works off the farm.
- Educational programs and processing not readily permitted.
- Currently focused on utilization and growing as much as possible; keeping current employees working; and loyalty to student employees (college), harvest crew and customers.

2) How many acres do you have?

- Own 51 acres in the area and lease 303 acres: 167 in Clackamas County and 136 acres in St. Paul/Donald/Aurora area. Own 40 acres in California. Father started farming in Clackamas County (and still lives on the farm). Son (Joe) and daughter-in-law and I live on the farm. Son-in-law and wife run the business. Farmed in California for 20 years during the winter months, experimented farming in Mexico where the labor was cheaper. Had issues with hired management and the quality of crops. Worked with farmers in Costa Rica for pineapples to OGC. Use drip system irrigation and certified organic by Oregon Tilth.
- Own 10 acres with 2 acres in land lease for food production and ½ acre is used in compost production
- Farm 7 acres. All of them are owned with a mortgage.
- Farm 125 acres and own 77 acres.

What are your approximate annual gross sales?

- $2 million.
- $28k. All compost is used on site at this time.
- $12-30,000 depending on weather and care of the farm.
- $68,000 last year.
- More than $500,000 in 2010. One-third of that goes to employee costs, wages only. Does not include taxes and insurance.

What crops do you grow?

- Certified organic produce. Forty crops include broccoli, cauliflower, zucchini, bell peppers, cucumbers, leaf lettuce, radishes, onions, green onion, collards, kale, chard, parsley, spinach, cilantro, rhubarb, blueberries, cabbage, carrots and asparagus.
- Fruits and vegetables for a CSA – Abundant Harvest has two acres here and another two acres nearby.
- Blueberries, a few apples and cane fruit. Also blueberry plants.
- Grow over 300 varieties of vegetables and herbs. There are some dried beans. We have some seed crops: favas, garlic, cilantro, dill, beans. We have 10,000 bees, five ducks and 14 hens.
- Grow 50 crops including berries, vegetables and flowers.

Do you process any food products on site?

- No, only washing. Would like to process bagged salad greens, flash frozen: rhubarb,

blueberries. Bag machine costs $300,000; flash frozen machine costs $80,000.

- Make compost using the Bokashi Technique. See: http://www.facebook.com/pages/New-Earth-Farm/194391424995. Bokashi is an almost odor free, one-week composting system that uses buckets or barrels and enzymes to produce odor free compost and compost tea. Also worm composting. We sell the composting systems and offer training. Processes 140 tons of food waste from Intel, school, and other sources. Could grow to 200-300 tons per year with equipment and site planning.
- No. Would like to do jams but blueberries U-pick sell out every year.
- Pickled peppers and hot sauce. One batch of collards in jars. Also could use the beeswax for candles, etc., but don't know yet.
- Just acquired the bees recently for pollination and honey. Probably won't sell the honey; just have enough for own consumption. Duck eggs are new. Animals are a complement to the vegetables. For example, the chickens and ducks turn slugs into fertilizer, and the bees help with pollination. Started two years ago making hot sauce. Add new varieties of peppers and that prompts new varieties of hot sauces. Also added new varieties of tomatoes and some Asian greens. Recently added some perennials (cardoons) because restaurants have asked for them. Just learning how to grow them. The peppers and hot sauces are all different and all delicious. Hot sauce is simple; it does not require preservatives and is very shelf stable due to the acid content. The peppers kill most potential pathogens. Its not very important but could be. Invited to an event where Williams Sonoma is going to evaluate some local products; that could lead to more sales.
- No.

<u>What else would you like to do on your property? What prevents you from doing so?</u>

- A number of things prevent doing more on the property:
  - Location of property is problematic. Creeping development and farming both sides of Hwy 212 causes too many problems. Complaints from property owners about existing operations.
  - Land is very rocky, lots of damage to equipment from large rocks in fields. Expensive.
  - Water rights, issues with access to water. Having to pay for city water to irrigate farm is very expensive. Would rather have an irrigation well, but located in area groundwater limited and reserved for domestic use. Water bill is $100,000 for city water. The rates are structured so that the more you use, the more they charge you.
  - ODOT: farming both sides of highway means crossing a dangerous place and won't let farm equipment cross highway. Issues with recent highway widening.
  - DEQ/DSL: wetlands issue on leased land. Unpredictable and inconsistent application of law.
  - State: labor issues and inspections. Not interested in helping and because they are located along the highway Inspections and investigations more than other farms. Always looking for problems and not interested in helping or if the claims are right or wrong. Labor claims investigation and fines are expensive, even when claim is false.
  - Leased land: property changed hands and is now owned by large hospital. They do not treat farmers fairly and often promise things and change their minds.
  - Wildlife pests: deer (uses blood meal to discourage them from the fields), rabbits (usually plants one row for them to eat), geese (uses mortar cracker to scare off), beaver (trap and relocate) 200 lb beavers.

- ODA Food Safety regulations: Biggest issue with threshold of $500,000. The sales amount shouldn't be the issue. It should be if the grower sells to the consumer rather than a sales amount. The problem is with the larger distributors that buy from many farms, the produce changes hands several times and you don't know where it came from. Also very costly to implement: need to sanitize each crate after picking every time and provide hand washing facilities. May need to hire up to three full time employees to comply with these regulations.
- Would like to experiment with hoop houses, solar heating, updating equipment for washing, cooling and packing. Profit margins are so slim, not able to invest in machinery, which would increase productivity and profits.

- Education center for composting and sustainable closed loop farming and living. Zoning and permits are barriers. Would like to have a new building and rainwater collection. Maybe a concrete pad. All for year around operations. Capital is the barrier. Capital also a barrier for equipment needed to handle the composting operations.
- Jams: kitchen regulations are a barrier. Need to exempt small farms from certified kitchen requirements. Ground water limitations are another barrier. Need to expand stormwater storage systems. We need to take our water from the sky
- Want to grow barley. Do some dry beans but don't have the equipment we would need to make it a profitable crop. Would need a sheller and a seed cleaner and some harvesting equipment that would attach to the tractor. Picking by hand is not very efficient.
- Sustainable agriculture tours, farm restaurant, community kitchen, concert area, community garden. Most of these don't generate enough income. Regulatory barriers and not enough time are issues.

3) Do you have plans for the future of your farm after you retire?

- Would like to stay in the area. Siri & Sons has good relationship and reputation with local community. Live in the area and have a long term commitment to the local market, customers and community. Jim may retire, but Joe (son) will continue to farm and operate the business.
- Yes. Daughter is a foodie and son-in-law wants to farm. The next generation is full of energy and ideas.
- Yes. Son-in-law. He is learning and has the ability but not all the skills yet.
- We are 65 and 70. No good plans, but recognize the need to have good plans.
- Dairy Creek Community Food Web is one of the organizations that is working on this as is Friends of Family Farmers. Sharon Thornberry facilitated a planning sessions for the Dairy Creek Community Food Web which recognized the transition from older to younger farmers as an important priority.
- Training for beginning farmers and others listed above if son decides to work else where. If he farms, it will be his decision.

<u>What kind of help could you use planning for the future of the farm?</u>

- Future markets and crops for organics; processing. Assistance with finding grant opportunities for farmland conservation measures that would assist in updating equipment for more efficiency and conservation measures. Since it's a full organic operation, already implementing a number of environmental resource conservation measures and would like to get funding and credit for doing so.

- Determine water rights. Rainwater harvesting. Plans for land transfer that don't break the bank.
- Need to find an easy way to take the OSU Farm transition course. Need different models of how to transfer ownership over time and in different circumstances.
- No. One thing that could be helpful would be the development of some kind of work group or support group for groups of farmers to work on that together.
- Someone to help coordinate and market activities listed above.

4) Does your farm activity require non-farm supplemental income to stay in business?

- Yes. Employees and owners also do landscaping, trucking, deconstruction, construction site clean up, demolition of buildings in off growing season to keep employees working. Have 20 full time employees and want to keep them employed. Would prefer to have them farm year round. (Hoop houses, season extending operations).
- Yes –wife works.
- Yes. Clair works full time at the Clackamas SWCD. So it has been 80 hour weeks for almost 30 years.
- Yes.
- The farm is not subsidized with outside funding. Spouse works off the farm, has outside salary and health insurance policy, but does not supplement farm.

<u>What would help you increase your income from farming?</u>

- Several things would help:
  - Financial assistance with meeting new food security requirements. Will have to hire possibly three employees to comply. Already are getting Gap certified and hired one employee so far. Have to implement by 2012 or OGC will not purchase.
  - Financial assistance to upgrade old equipment.
  - Financial assistance for environmental conservation measures. They read that there is $50 million available to pay farmers for conservation, interested in opportunities and if it would create more problems?
  - Fewer regulatory and legal issues. Many instances of false labor claims, inspections, costly and usually not valid claims.
  - Access to land and water.
  - Fewer complaints from neighbors
- Expand land for production for the CSA. Sell compost and compost tea. Now have an oversupply of the tea. A commercial tea product strategy is being developed. In the store the stuff sells for a very high price and have a lot of it. Charge for workshops and compost education.
- Jams, related farm product sales, nursery plants, carbon offsets for forest reserves and soil management (uses the Nature Conservancy calculations), flowers, vegetables from farm or other farmers, adequate signage, farm stands (maybe a cooperative one).
- More diversification; especially more value added products. More educational activities; do earn some money doing workshops and we could do more of that. The Farm Tax Deferral is crucial to decision to farm. Otherwise would not have been able to afford the taxes.
- More people in the community buying from the farm. If more local consumption, would sell at fewer places closer to town. Currently at 15 different places during the week. Season

extension structures (hoop houses, greenhouses). Government support for advertising to buy local products is essential.

5) How do you currently connect to your customers?

- Sells mostly to Organically Grown Co. Also to ProOrganics and Discovery in Canada. Those sell to New Seasons, Fred Meyer and Whole Foods. Some CSAs purchase from them: Eat Organic First and others that stop by to purchase.
- A single customer for the compost at this time: Membership CSA – Abundant Harvest. See: http://abundantharvest.biz/.
- Have many long term customers and are usually over-subscribed. Need a web site to provide current information, a marketing plan, membership system similar to a CSA.
- Sell about 60% to restaurants and 40% to farmers' markets. Started direct sales through a grocery store owned by a neighbor. It closed, but met chefs through the farmer chef connection to get started. Go to the meeting every year and it's a great way to connect. One of our biggest customers for the past three years has been Bon Appetit at Ronler Acres. However, favorite chef left and is starting a restaurant. This year I did a lot of aggressive outreach and are approaching another Bon Appetit kitchen and I have just done first sale there. Do have a web site and it helps people see the farm, but does not help with the initial connection. Sent out a weekly list to chefs about what is available. Also use Facebook. Do use Food Hub but the personal relationship is most important.
- Relationship marketing. Selling through the community involvement. Participation on city committees. Strong bond with neighbors – nearby residents walk to farm.

  What would help you grow your sales and/or expand into new markets?

  - Several things:
    - Looking into using some of the land to plant nursery stock (shrubs, Japanese maples); keeping the quality high to set them apart. Continue and develop good relationships with people we do business with.
    - More efficient and new models of equipment: tractor repair can take from four days to four months and have to send it off to be repaired. Packing, washing and cooling equipment are outdated and needs to be upgraded for efficiency.
    - Access to affordable water and power, rates are high (currently using city water, Sunrise Water Authority, for irrigation).
    - Insurance rates are high because they are located along Highway 212. All farms are high risk with equipment and other operations on farm.
  - Create a great market for Bokashi Tea. Sale of worms. Composting systems.
  - Expand blueberries, jams (value added), possibly expand farm into marginal forest land. Utilize the Oregon Wildlife Habitat Conservation and Management Program to set aside habit while retaining tax deferral.
  - Market in the Portland region and Cannon Beach. It is 35 miles to Portland, 20 miles to Intel and 65 miles to Cannon Beach. Do not plan to expand into other geographic markets.
  - Would like to be more efficient in everything. Have a fairly decent system of planning and laying out the field, but consider themselves beginners. Some other farmers are much better at this because they have a lot more experience and bigger crews. Constantly learning. Self-financed, so don't do everything that want to do. Very debt averse.
  - Don't need/want to expand into new markets. Current markets: farm stand, farmers markets,

hospitals allows to control price. Not interested in schools, restaurant or wholesale – their pricing structure keeps the prices too low. CSA model. Don't need the cash flow. CSAs are marketing and labor intensive. Can't do this and farm at the same time.

Is there some other way that you would increase your capacity/revenue?

- Year round farming options. (Heated hoop houses).
- Expand farm under cultivation by two acres. Carbon offsets for the wooded acres.
- Increase on-farm sales of our crops and other farmer's crops.
- More season extension equipment, multiple crops on same soil, business and government allow permanent farmers market in several locations in cities with permanent covering. Issues with location, parking, set-up/take down, weather hamper sales at the markets.

Do you feel like your marketing efforts are effective?

- Could be more effective. Would like to sell more volume to fewer restaurants. Have a pretty efficient system for making deliveries, but making the contact and keeping track of orders is labor intensive. Have a minimum order of $100 but don't enforce it.

What do you think are the best opportunities for you to expand your markets?

- Great opportunity with restaurants and eaters in Portland. Also, as gardening expands in Portland, the market for starts expands. It is now about 20% of annual sales.

What barriers do you think prevent you from marketing your product more effectively?

- Right now, the weather. Also, would like a better understanding of how the chefs make their decisions and for people to understand better what good food costs and expand their willingness to pay for it. Not the highest priced produce at farmers markets, but are in the top tier and need a loyal customer base and we do well.

What kind of assistance do you think would help you overcome those barriers?

- Educating chefs about heirloom varieties. Then they can educate their customers. Society needs to understand that good food costs money. Farmers markets are a big part of that. Farmer-chef connection is probably as good as it can be but the information from this study could inform the curriculum for the annual meeting next year. Be more strategic about the subjects covered. Menu acknowledgement of farms is also helpful.

Assistance with a program like Food Hub? Some kind of branding like Willamette Valley Grown?

- Branding is only important for exporting out of the region so not important for them. Lots of farms could do better with image and building recognition through signs, etc. At the small farm conference they work on that, but it's hard to execute. Need partnerships with students studying graphic design—perhaps a contest for designing farm logos.

About what percentage of your production is organic?

- 99.9%, the eggs are not certified though use organic methods. They ,ake a very small contribution to income.

What is your primary motivation for organic production? Prompt: marketing, stewardship, safety for employees and family.

- It's the only proper way to do things. Initially farmed organic because believe it is the proper way to care for the land. Customers are really dedicated to buying organic; some of them for health reasons (believe that health issues are caused by bad food) and some for environmental considerations. This and getting to know neighbors who are conventional farmers and who have

many health issues including cancer and auto immune diseases, has led to belief that own health as farmers is protected by organic practices.

Do you use a third party certification? Which one? NOTE: These don't have to be only the organic certifications…

- Oregon Tilth

What are Pros and cons of these certifications?

- To be supportive of a very good organization and movement and to be instructed about the technicalities which can often change with no notice. Con is paperwork and cost, although the cost is usually rebated through farm bill money.

Are you satisfied with the size and productivity of your operation? Why or why not?

- Satisfied with size in terms of number of acres but not the productivity

Would you like to increase your land base?

- No.

6) How many people work on your farm and what are your major labor challenges?

- Joe is in charge of the crop planting, sales, purchasing of seeds, fertilizer and starts and oversees six crew leaders. Jim oversees quality, irrigation, tractor maintenance, packing, cooling, etc. Alma takes care of the paperwork. They have 20 full-time employees; 80-100 at harvest time (4 months). Most employees are from Mexico. Full-time employees are men that have families in Mexico. The wages paid allow them to send money home to family to build a home and live comfortably. They visit once/twice a year. Most of the full time employees have worked for Siri at least 10 years and up to 40 years for the family farm. Have a close relationship with employees and have visited their villages in Mexico. Currently provide a labor camp for 20 employees, full services, sanitation, kitchens, etc, cost of sewer hook up $50,000. Issues with regulators regarding charging for lodging. Already paying for a lot of the current housing for the workers. Pay an hourly wage, not piece rate. Organics have a high standard and speed does not provide a good product; too many culls. Prefer a slower pace with better quality
- One FTE on composting. One part-time for CSA. One full time employee for CSA. Seasonal volunteers for CSA.
- All part-time. Three family members, four at U pick time with an Hispanic family.
- Three full time, two part-time. More will be added as needed in the summer. Have had a core of four people for the last several years and that has been a good number. Sometimes contacted by people who want to gain experience on a farm. Look for people with a good background. Sometimes they spend an hour or a day and can tell whether they will fit, and that is important. Workforce is available when needed. Core is pretty stable and it's fairly easy to find replacements when needed. We do not employ migrant workers.
- Ten harvest crew; 15 marketing crew. Labor challenges include insurance, false workman's comp claims, false unemployment claims. False claims raises rates. Worried about future legal employees that want to plan, tend and harvest crops. Current Hispanic harvest crew is paid "piece rate" and earn good wages. $13-$29/hr. Have tried "local" crew to harvest and didn't even make Oregon minimum wage, so needed to supplement. More costly, not enough productivity.

What would help improve the quality and availability of your workforce and management capacity?

- Do not have problems finding workers. Usually have more people looking for work than have jobs. Have a 60-70% return rate, usually all from Mexico. All are required to be documented workers. Currently, built and operating a labor camp in Happy Valley for 20 employees. This was paid out of pocket by Jim (not the farm) because they wanted to provide decent housing for employees and show loyalty to them with housing and fair wages. Interested in options for farm worker housing and has land available for future development.
- Fine now.
- For owners and family members small farm business management class (OSU). For the temps and farm workers farmer safety seminars (especially hygiene). Customer relations/marketing strategies (e.g., they carry the blueberries to the customer cars).
- Part of the reason people work here is to learn. No one is as skilled as people who have been farming all their lives.
- Adequate affordable local housing. Regulations and cost are too high to want to get involved with this. Concerns about social acceptability from neighbors about workers' housing. Accredited high school curriculum on sustainable agriculture, including on-farm classrooms and internships.

7) What are your biggest challenges as a farmer?

- All of the above.
- Roadway maintenance – shared work/trading program for pooling labor to help small farms with big projects. Financing for expansion and startup for farm related operations. Investment fund for small new agriculture enterprises. Water supply. Need rainwater harvesting systems. Package and financing plans.
- Stormwater collection and management systems designs and financing plans. Building permits for farm stands (rules are incredible with 20 parking spots). County allowances and National Scenic Area permits. Also allow regular kitchens for small farm value added processing. Signage allowances. Concerned that we don't have the right to have a sign. Standard for signs that allows them. Multnomah County and Scenic Area Zoning for allowances for value added on-farm production and sales. Blueberry overproduction globally. Must have a premium product and experience to complete against low cost imported blueberries and mega farms. Need to be allowed to have membership access to the farm and educational program for the premium experience.
- Would like to have a UV-resistant clear plastic mulch at an affordable price. That would help because clear mulch is so much more effective than black. Tested it last year and the clear did much better, but had to make it from paint drop cloths. It deteriorated and picking up the pieces at the end of the year was really hard. May be interested in joining a coop.
- Keeping up with new regulations. Current legislation relating to focus on gross sales over $500,000 is too low of a threshold and does not consider his type of operation. It requires keeping track of end purchasers, stainless packing tables and stainless cutting knives in field. Requires all harvesters to have a food handler's license. Other regulatory programs about guest workers. Most of harvest crew is from Mexico and legally working in the US. However, many employees have been with farm for a long time. Has concerns about future workers and regulations. There is a void in small scale farm equipment adaptable to sustainable farming.

How could you be assisted with these?

- Go back to the way it used to be. Use common sense. Too many regulations and the inspectors/regulators are only out to enforce the regulations, even if it doesn't make sense.
- See above.
- See above.
- Local government support for permanent farmers markets, adequate parking, covered areas, buy local programs

8) Do you experience conflict with neighbors, other farmers, or regulators/government in conducting your operations?

- See above.
- Conventional growers spray and chemical drift onto property. Need to develop berm to protect water and crops.
- No except if have to spray which have only done once. Let everyone know so they can keep pets and children indoors. Might be an odor if have major composting.
- Not really. Most years have water cut off in August by the County Watermaster and the State Water Resources Board, but know that will happen. County Watermaster measures the level of the creek and when its too low its cut off .By that time, don't really need to irrigate much. Sometimes it's a problem with getting the winter crops established, but not usually. Can use the domestic well water for ½ acre
- Issues with inspectors, which are usually looking to find something wrong. Will purposely leave something wrong for them to find. They should be helping, rather than trying to find something wrong. No issues with neighbors, takes a change in attitude with growers. Competition with other farmers on similar scale, price competition, selling produce that they don't grow at farmers markets. Water rights, land use law, access permits, need a streamlined process for agriculture.

How could these conflicts be eliminated or reduced?

- See above.
- Bio barriers for property and watershed drainage.
- Good practices, outreach and information. Education of customers. Buffer strips to neighbors.
- True open dialogue with all entities to understand concerns on today's farm. Urban influenced farms are different than eastern Oregon farms, but state regulations do not recognize this. Appropriate regulations for these. Target farmers for conflict resolution, older farmers need to change their attitudes.

9) What kinds of regulation, rules or laws do you feel limit your ability to farm profitably?

- Would like to have more water available for packing (washing)
- Water rights are difficult for farmers and easy for residential and commercial development. Need to have a streamlined process and easy ways to get into the rainwater harvesting investment. Compost expansion – need permits from WA County (land use permit), Metro (tipping fees), and DEQ (allowed to sell to farms but not to markets). With Metro, have to get a tipping fee permit and pay tipping fees. These may constrain the volume of business opportunity. Confusing why three permits are needed to compost food waste while conventional farmers can spray almost anything without a permit. Pay tipping fees to Metro like Waste Management Co. Siting may be an issue even with almost no odors. Not like regular composting. DEQ says composting is not

allowed on high value farm land except for local operations. Organic certification? Not sure if compost can be certified as organic by Oregon Tilth. Housing for new young farmers. Need to have some flexibility for rural residences that are clearly farm production oriented. Zoning laws need to consider use.

- Need more flexibility for small farmers or shared commercial kitchens. Signs guidelines that allow signs. Fruit stand requirements that are rational for small farms and do not require 20 parking spaces, etc. Allow special events for farm members (say up to 200 people). Membership access. Cost of liability insurance. Not sure of the solution maybe a cooperative. Education program on regulations and how to streamline.
- Very little. Can't sell eggs to restaurants, but give them away. Duck eggs can sell at farmers market but not chicken eggs, because farmers markets are saturated with chicken eggs. Would need a license to sell to restaurants which would require a clean room and other investments. One problem is that cannot do Woofing. Willing workers on Organic Farms. It is illegal in Oregon but legal in many other places. Could have a more robust education program if could have actual interns. Have to comply with wage laws but a lot of people want to volunteer and learn, but it's illegal for to do that unless through a formal educational program. Had a meeting at ODA last year about this. The Rogue farm corps is working on developing something with Rogue community college to create an education program that will be accredited and then you could use interns without running afoul of the labor laws. The National Center for Alternative Technology has a set of internships. Why can't that be done here? For profit business can't do it. Have had two interns who were getting college credit. A well organized program like that would be good. Clackamas Community College is going to start offering their certificate in urban farming.
- See above.

<u>How could they be changed to improve your ability to farm?</u>

- See above.
- See above.
- See above.

10) What are the greatest needs of small and medium sized farmers in the region?

- Consider their operation a medium sized family farm. Access to affordable water for irrigation/washing. Financial support for upgrading equipment. Season extending farming options. Financial incentives for farmland/resource conservation. Farmworker housing. Assistance with regulatory rules & requirements.
- Food safety regulations that allow local food system to emerge. Access to capital and business planning. Water rights and new rainwater harvesting abilities. Marketing approaches assistance (web sites, etc.). Example is the PACSAC for CSAs marketing and assistance. See: http://portlandcsa.org/Welcome.html Sharing labor and equipment such as a tool library.
- Marketing expertise and techniques. Expand the Farm Fresh brochure into a web site and marketing strategy. Ownership transition planning approaches. Rainwater harvesting systems and financing.
- Appropriate small scale machinery for crops grown for farmers markets. Available organic amendments close to farms and knowledgeable resources.

What are the biggest opportunities for growing the local/regional food markets in the Portland region?

- Processing, specializing, sustaining. The price point from convention vs. organic has fallen as more farmers start farming organically. Will need to be competitive to sustain business at this level.
- A regional food economy. Promotion of nutrient dense local healthy foods. Farm to school programs to reach the new generations. Increasing the local content in the larger markets. (e.g., Fred Meyer)
- Education and package of crop marketing resources. Education on crop-income diversification strategies. Systematic connecting to customers (e.g., Farm Fresh brochure expansion). Expanding sales of local food in big markets. Use of Food Hub. Chef to Farm Program. Farms as school-related educational platform. Focus extension agents on marketing and technical expertise on the farms – not just classes.
- Partnering with the medical profession. Selling to schools at a profitable level. Local marketing: permanent, covered farmers market area (infrastructure). Commercial/community kitchens. Food preservation classes.

11) Is there anything else would like to add?

- Interested in options for supporting farming operations, employee support, and community relationship and conservation measures.
- Close the food waste loop locally. Concerned that Metro and Portland will go for a big single solution that does not capture local economic value and opportunity.
- Important to share information among farmers on what is working to increase incomes.
- Education and transfer land to a new generation.
- Could use some help with using financial and planning tools. Would love to sit down with someone who could show how to use excel and other planning tools more effectively. Would like to have an integrated system for planning and recordkeeping that integrates orders, invoices and to be picked list and harvest record.
- Really liked this survey. Made him think about his farm in a different way. Once results are collated, would like to see the answers and suggested that a meeting be set up with core farmers and project team to review the results and discuss them.

APPENDIX E
SARE Farmers and Growers Survey Summary
September 30, 2011

The Portland metropolitan area is well known nationwide for its cutting edge sustainability vision, urban development and farmland protection framework. The region has a large number of productive small farms that are located within and near urban areas. There is a growing interest in, and support for, locally grown, sustainable food. This interest is driven by rising concerns over public health, food security, transportation costs, climate change, jobs and the economy, and the search for a more community-based, sustainable lifestyle. There is growing support for farmers markets, community supported agriculture (CSA), community gardens, local healthy food school programs and institutional purchases of fresh, locally grown produce. Increasing locally-sourced fruits and vegetables is also a goal of the Regional Food Bank.

Western Sustainable Agriculture Research and Education (SARE) is funding a study to examine key agricultural trends, identify producer needs and define strategies to strengthen the local food production system. The goals of the study are to:

- Define the Portland Metropolitan Foodshed, identify related agricultural and economic trends and develop a needs assessment based on input from producers and other stakeholders.
- Assemble a regional toolkit of strategies to support evolution of a sustainable Portland Metropolitan Foodshed.
- Work with the City of Damascus, Oregon to test the toolkit on a local level.
- Develop a research and educational program that supports these goals and supports small and medium farmers in the region.

As part of this study, an online survey was distributed to farmers and growers in the Portland region. The survey was completed by 81 growers and farmers. Along with interviews conducted with five core farmers in the regional foodshed, the results of this online survey of farmers and growers reflect s a range of farming operations and will be used to show the impacts of urban development on small and mid sized farming operations. A summary of survey results follows.

1. What were your annual gross farm sales in 2009?
Farmers' annual gross sales ranged from $0 to $1.6 million with a median of $22,000. Eight respondents reported sales of $500,000 or more. Several respondents indicated $0 in sales because they did not start farming until 2010.

2. How many acres were involved in generating the gross farm sales in Question #1?
More than 4,200 acres were involved in generating gross sales, with individual responses ranging from zero to 850 acres. The average number of acres is approximately 53 with a median of six acres.

3. How many acres do you own v. lease?
More than 90 percent of respondents own the land they farm and 79 percent lease farmland. Approximately two-thirds of the total acreage is owned and one-third is leased.

4. What is the primary source of the gross farm income in Question #1?

- Sixty-seven respondents reported that crops represent a portion of their gross farm income; 55 indicating crops are the primary source of income.
- Thirty-two respondents indicate that a portion of their gross farm income is generated by livestock; 13 indicate it is the primary source of income.
- Nineteen farmers report that value added and processing activities account for a portion of their gross farm income and the primary source of income for three respondents.
- Twelve respondents report that they generate revenue from non-edible crops; they are the primary source of income for one respondent.
- Seven respondents receive income from other sources such as herb and vegetable starts, honey, compost products and educational services; two indicate that these are the primary source of the gross farm income.

5. What county is your residence located?

County	Residences
Multnomah	21
Clackamas	20
Washington	12
Yamhill	6
Benton	5
Linn	4
Columbia	3
Lane	2
Polk	2
Clark, WA	1
Coos	1
Deschutes	1
Marion	1

6. What is the age of the principal owner(s) of this farm?

The average age of principal farm owners is approximately 47 years old with a median age of 46.

7. Do you plan to transfer land/farm ownership?

Approximately 56 percent of respondents do not plan to transfer land/farm ownership.

If you answered yes to question #7, to whom will you be transferring ownership?

Ownership Recipient	Responses	Percent
Family member	19	66%
Transfer to family trust	6	21%
Employee	2	7%
Donate to a nonprofit organization	1	3%
Transfer to land trust	1	3%

Other:

- Don't know (2)
- Adding LLC members but also exploring other structural options

- Already a land trust
- Combination of Land Trust and sell for non- ag use
- If not an employee then to a business partner
- Partner
- The next generation of UFC volunteers

If you answered yes to question #7, is your plan formalized in a legal document, such as a will?
Approximately 72 percent of respondents do not have their plans formalized in a legal document.

If you answered yes to question #7, do you need assistance in the following areas?
More than 86 percent of respondents need assistance with legal issues. 80 percent need assistance with tax issues. One respondent indicated they need assistance with a business plan for a new operator.

8. Is your main business goal to obtain farm tax deferral from your county tax assessor's office?
Less than eight percent of respondents indicate that obtaining farm tax deferral from their county tax assessor office is their main goal.

9. Do you perform additional processing or packaging to your products before your sell to a customer?
Approximately 35 percent of respondents perform additional processing or packaging to their products before selling them to a customer.

10. Does your farm activity require non-farm supplemental income to stay in business?
More than 68 percent of respondents' farm activity requires non-farm supplemental income to stay in business.

11. How do you connect to your customers? Select all that apply.

Method	Responses	Percent
In person	45	96%
Website	34	73%
Phone	27	64%
Facebook	23	46%
Twitter	4	6%

Other:
- Email (9)
- Local Harvest, Food Hub and other websites (8)
- Farmers markets (2)
- Signage (2)
- Farm networking
- Flyers at local stores
- Meetings, like the farmer-chef connection
- Networking through customers
- Paper advertising

12. Do you need help connecting with your customers?
Approximately 30 percent of respondents indicate they need help connecting with customers.

13. Are you aware of existing methods for customer connections, such as Food Hub, etc.?
More than 86 percent of respondents are aware of existing methods for customer connections such as Food Hub.

14. Could a "Brand" add value to your products and markets, such as a "Willamette Valley Grown" etc.?
Nearly 62 percent of respondents indicate a brand could add value to their products and markets.

15. Where do you currently market/sell most of your farm products?
- Farmers markets (37)
- CSA (34)
- On farm, farm stand, direct sales to customers/friends/local community (23)
- Restaurants (14)
- Wholesale (8)
- Food Hub, Local Harvest, Farm Loop, Craigslist, Facebook (6)
- Grocery stores (3)
- Portland (3)
- Distributors (2)
- Other farmers (2)
- Buying clubs
- Cooperative
- Farm supply outlets
- Food carts
- Garden stores
- Livestock auction yard
- Madras
- Processor
- Retail nurseries
- Statewide
- U-Pick

16. Are you satisfied with your current market outlets?
Nearly 37 percent of respondents are not satisfied with their current market outlets.

17. Which of the following geographic markets are the targets for you in the next five years?

Geographic Market	Responses	Percent
Metro Area	65	93%
West Coast	11	16%
International	3	4%
National	2	3%

18. How much of your annual farm sales are generated from organic production?
More than 56 percent of respondents indicate that all of their farm sales are generated from organic production. 12 percent responded "some" and 32 percent said "none."

If some or all of your production is organic, do you use organic production as:

Organic Production Method	Responses	Percent
Marketing tool	37	67%
Stewardship practices	55	100%
Safety practice to family employees	49	89%

What type of third party certification system, if any, do you use?

Certification System	Responses	Percent
None	50	76%
Oregon Tilth	15	23%
USDA Organic	2	3%
Food Alliance	1	2%
Oregon Dept of Ag	1	2%
Salmon Safe	1	2%

19. How far do you travel to market or sell your farm products?
The distance that respondents travel to market or sell their products ranges from a zero (on farm sales only) to several hundred miles. For farmers who do travel, the average distance traveled is 46 miles with a median distance of 30 miles.

20. Are there crops or livestock that you would like to grow that you currently are not?
58 percent of respondents indicate that there are crops or livestock they would like to grow that they currently are not.

21. What technology would help you in marketing your products?

Technology	Responses	Percent
Website	48	96%
Facebook	25	50%
Twitter	8	16%

Other:

- Radio (2)
- Software for live inventory on interactive website for ordering
- A major marketing campaign explaining CSA
- Better online storefront
- Don't know
- News coverage
- Not familiar enough with Twitter to know
- Print media
- We are active on our site and facebook, but I'm sure twitter could serve us in some fashion
- We have a web page but need to expand our marketing
- We use all these, they help

22. Are there barriers for you to effectively marketing your product?
More than 52 percent of respondents indicate that there are barriers to effectively marketing their products. Barriers include:

- Not enough time (17)
- Access to capital (9)
  - Expand marketing and outreach/delivery (2)
  - Develop an online presence
  - Host on-farm events
  - Abattoir capacity
- Lack of marketing expertise (7)
- Regulations (5)
  - Food safety laws (4)
  - Organic certification
- Need to educate customer base (3)
- Acronym "CSA" (2)
- Seasonality of markets (2)
- Cheap food imported from low-wage countries
- CSA market saturation
- Failing economy
- Gray area for small-scale produce selling within the city
- Non-farm employment
- Unethical/untruthful competition

23. Do you need assistance with marketing support?
More than 59 percent of respondents indicate a need for assistance with marketing support.

24. Are you satisfied with the size and productivity of your operation?
Twenty percent of respondents indicate they are satisfied with the size and productivity of their operation. Of the 80 percent who are not satisfied:

Response	Responses	Percent
Would like to both expand output/revenues and reduce costs.	41	51%
Would like to increase output/revenues.	22	27.5%
Would like to reduce costs.	1	1.3%

25. Would you like to increase your land base?
Fifty percent of respondents would like to increase their land base.

If you answered yes to question #25, the reason to increase your land base is to:

Reason	Responses	Percent
Potentially create a new market opportunity not otherwise obtainable with current acreage	23	62%
Meet the demand in current market strategy	20	54%
Gain economies of size with equipment	16	43%
Have family members that would also like to farm and this would allow them the ability to farm as well	10	27%

Other:

- Increase sustainability of operation through long-term rotations and soil building
- Increase the fertility sustainability of the farm through increasing herd size
- Our nonprofit model seeks to improve communities
- Provide jobs for family so we are self-sustainable
- Seed saving
- To provide incubator services for others who would like to enter into the field of small scale intensive farming
- Train new farmers

26. If you were to expand your business, how would you pay for additional farm inputs, equipment, land, buildings or other expansion?

Payment Method	Responses	Percent
Self/Family	53	84%
Commercial lender	14	22%
Investors	12	19%
FHA	2	3%

Other:

- CSA membership (3)
- Fund raising efforts; grants (3)
  - New Farmers grants
  - Rainwater harvesting
- Can't due to lack of access to capital (2)
- After we purchase the farm, can rent/borrow equipment from parents who are also farmers
- Farming operation is separate from our food product, from our farm crop. The food business would have to be invested in by private investors.
- Have about exhausted own savings and resources
- Micro-financing.
- Need all of the above
- Planning on investing in another small food business by way of a zero-interest micro loan. In addition putting all gross profit back into the business to expand and grow and will continue to do so for the next 5 years.
- Private lender
- Working with MercyCorps NW matched savings program

27. Are you interested in joining a Cooperative or other similar organization?

- Approximately 57 percent of respondents are interested in joining a cooperative or other smaller organization.

If you answered yes to question #27, what is the most important reason?

Reason	Responses	Percent
Access to equipment	13	29%
New market opportunities	14	31%
Better access to inputs	6	13%
Expand current market	6	13%
Lower cost	6	13%

28. Besides yourself, how many family members work for your farming operation full-time?
Responses ranged from zero to five with an average of one additional family member working for farming operations full-time.

29. How many family members work for your farming operation part-time?
Responses ranged from zero to ten with an average of 1.4 family members working for farming operations part-time.

30. How many non-family employees work for your farming operation?
Responses ranged from zero to 100 with an average of seven and median of one non-family employees working for farming operations.

What percent of your employees in Question #30 are local?
More than 88 percent of respondents use local employees and nearly 60 percent use migrant workers.

Is your labor force stable (available when needed)?
More than 83 percent of respondents indicate that their labor force is stable.

Is your labor force adequately skilled for the tasks expected of them?
80 percent of respondents said that their labor force is adequately skilled.

31. What do you need to increase your capacity to generate new markets, increase revenues, or reduce costs?

- Capital (10)
- Land/water rights (10)
- Time (10)
- Labor (6)
- Equipment/mechanization (4)
- Lower costs (4)
- Stronger economy (4)
- Higher prices (2)
- Less corporate competition (2)

- Management assistance (2)
- Marketing assistance (2)
- Reduced regulations (2)
- Ability to butcher more livestock
- All-season farmers market
- Better distribution
- Better educated customer base
- Higher, more efficient production
- Local access to organic inputs and sustainable packaging
- Partner
- Rainwater harvesting storage
- Specialize/more processing

32. What is the biggest barrier to producing your product for your market?

- Weather (13)
- Capital (13)
- Land (12)
- Labor (9)
- Regulations (7)
- Time (7)
- Low prices/values/profits (3)
- Processing/packaging (3)
- Fuel costs (2)
- Water access/costs (2)
- Certification process

33. What technology would help you in producing your products?

- Propagating/harvesting (14)
- Packaging/processing (7)
- Greenhouse/hoop houses (5)
- Information technology/management software (4)
- Water storage/efficiency/irrigation (4)
- Certified commercial kitchen (2)
- Compost turner (2)
- Energy efficiency (2)
- Refrigerated storage (2)
- Weather forecasting (2)
- Extension agents
- High tunnels
- Pesticides
- Tool lending library

34. Do you have conflicts in your ability to produce your products in a safe and efficient manner?

77 percent of respondents have conflicts in their ability to produce their products in a safe and efficient manger.

If Yes, what is the main conflict?

- Neighbors/pesticide and herbicide drift (4)
- Government regulation (3)
- Transportation (2)
- Vandalism/theft (2)
- Sanitation
- Time
- Unclear definition of safe food requirements.

If Yes, whom do you have the most conflict with?

Barrier	Responses	Percent
Local government	8	47%
Non-farm neighbors	7	41%
Other farmers	2	12%

Other:

- Federal regulations
- GAP
- Local regulations
- Neighbors
- State regulations

35. What other regulatory barriers do you face?

Barrier	Responses	Percent
Certification systems	26	53%
Land use, permitted uses	26	53%
Water rights and supply	22	45%
Labor laws	17	35%
Farmers markets rules and regulations	16	33%
Tax structure	10	20%
Transportation access	2	4%
Air quality rules	2	5%

Other:

- Food safety regulations (5)
- Certification costs
- DEQ
- Unfair off shore supplies that undercut markets
- Water quality protection
- Zoning regulations

36. What is your chief regulatory challenge?

Challenge	Responses	Percent
Certification systems	23	42%
Diversification on site	11	20%
Labor regulations	10	18%
Land use	5	9%
Water supply	5	9%
Water pollution	1	2%
Air quality	0	0%

37. What level of government is the most important to your operations?

Government	Responses	Percent
State	22	36%
County	17	27%
Federal	7	11%
Soil and Water Conservation District	6	10%
Cooperative Extension	5	8%
City	4	7%
Regional (Metro)	1	2%
International	0	0%

38. Where are the opportunities to expand your markets?

- Local/on-farm/local markets/schools (10)
- CSA (6)
- Consumer awareness/education (4)
- Metro region (4)
- Restaurants (4)
- Everywhere (3)
- Portland (3)
- Value added markets (3)
- Direct marketing during off-season (2)
- Farmers markets (2)
- I-5 corridor, Seattle to San Francisco (2)
- Internet (2)
- Nationally (2)
- Agritourism
- Beer, wine and spirits production
- Collective gardens on public lands
- Each customer buying more
- Farm supply outlets
- Internationally
- Nursery
- Other farms
- Tri-county area
- Wholesale/stores

39. What are the pros and cons related to organic certification or other certification?

Pros	Cons
Marketing/branding/market expansion (11)	Cost (29)
Credibility/consumer confidence (10)	Administrative process (19)
Price (3)	Minimal benefit (11)
Right thing to do (2)	Lax certification laws/meaningless (7)
Support (2)	Too restrictive/lower yield (5)
	Customers unlikely to pay for increased production costs (3)
	Scarcity of organic livestock feeds (2)

40. What is the most important need to improve your operation?

Infrastructure/equipment (13)
Capital/money/financing/ (11)
Labor (8)
More profit/reduced costs (6)
Land (5)
Customer demand/public education (4)
Government support/regulatory changes (4)
Partner/management succession (3)
Water (3)
Marketing (2)
Time (2)
Decentralized distribution system
Education/training
Better weather
Better processing

41. How has increased awareness of environmental stewardship changed your operations?

No change; have always been environmental stewards (17)
Changed practices; improved/added value (6)
Improved pasture/farm management (7)
Increased consumer education/interest (6)
Fewer chemicals (5)
Reason for farming (4)
Conserve energy (3)
Increased biodiversity (3)
Improved water quality/management (3)
None (2)
Recycle plastic (2)
Invested in organic certification

SARE Farming Interest Survey Summary
October 6, 2011

The Portland metropolitan area is well known nationwide for its cutting edge sustainability vision, urban development and farmland protection framework. The region has a large number of productive small farms that are located within and near urban areas. There is a growing interest in, and support for, locally grown, sustainable food. This interest is driven by rising concerns over public health, food security, transportation costs, climate change, jobs and the economy, and the search for a more community-based, sustainable lifestyle. There is growing support for farmers markets, community supported agriculture, community gardens, local healthy food school programs and institutional purchases of fresh, locally grown produce. Increasing locally-sourced fruits and vegetables is also a goal of the Regional Food Bank.

Western Sustainable Agriculture Research and Education (SARE) is funding a study to examine key agricultural trends, identify producer needs and define strategies to strengthen the local food production system. The goals of the study are to:

- Define the Portland Metropolitan Foodshed, identify related agricultural and economic trends and develop a needs assessment based on input from producers and other stakeholders.
- Assemble a regional toolkit of strategies to support evolution of a sustainable Portland Metropolitan Foodshed.
- Work with the City of Damascus, Oregon to test the toolkit on a local level.
- Develop a research and educational program that supports these goals and supports small and medium farmers in the region.

As part of this study, an online survey was distributed to people potentially interested in becoming farmers in the Portland region. The survey was completed by 12 respondents. Survey results help gauge local interest in new farming operations. A summary of survey results follows.

1. What has been your exposure to the agriculture industry?

Exposure	Responses	Percent
Worked or currently work on a farm that generates revenue	4	33%
Worked or currently work in a garden that is not operated as a business	2	17%
Interested in exploring the operation of a revenue generating farm	6	50%

2. What has sparked your interest in farming?

56 percent of respondents are interested in improving the quality of food available in the region. 44 percent indicate that the potential of farming as a business sparked their interest in farming. Other responses include:

- Worked for Nash's Organic Produce but mostly because growing food, marketing, and cooking foster connections between all of us.
- Getting out of the city to live a closer relationship with nature.
- Work for the Farm Service Agency in SW Washington and am an advocate for USDA programs that will benefit smaller scale farmers who are often organic or transitional.
- Think the quality of food available in the Portland area is great, and am interested in producing

food for Portland consumers.
- Interested in improving the quality of food available in the region.
- Connection between food, environment, and community; and the ability to do what I love for a living.

3. How did you become introduced to the idea of farming as a business?
- Was the produce manager at an urban food co-op, started to source from farms; then visit them, then volunteer at them.
- It has been in the family.
- From reading about it.
- Small Farmer's Journal, working horses in harness, growing my family's vegetables, my mother and great aunt, eating.
- A windfall nearing retirement that allowed me to buy land.
- I purchased several acres of farmable land.
- It is a personal choice. Grew up on a farm, moved to the city, graduated from different colleges, worked in the corporate world, very tired of the office work, and ready to work outdoors.
- I worked at Sunbow Farm in Corvallis and prior to that, served as an Agricultural Advisor for the US Peace Corps in Mongolia (partnered with Mercy Corp and USAID) working with herders to start vegetable production for the first time in their histories between 2003-2005. Prior to that, lifelong agricultural experiences at grandparents farm in Eastern Kentucky.
- I worked for a restaurant that bought products from local growers, then I apprenticed at a local farm to learn about running a small farm as a business.
- I have family members that are farmers and friends that are farmers and I work in the farmers market industry.
- Myself.
- Was a farm apprentice for one year and got to see the internal business operations as well as take some classes about Whole Farm Management.

4. What assistance have you received in moving toward the goal of operating a successful farm?
- None. (4)
- Tons of verbal support.
- Research, research, research. Educating myself.
- Currently enrolled in Multnomah County's Beginning Urban Farming Apprenticeship (BUFA) program.
- Food Bank provides assistance towards our urban farm in North Portland. We have been given rain barrels by the food bank. Also, neighborhood partnerships have led to a successful neighborhood egg co-op, and work share projects on Sauvie Island. We have received no assistance from federal/USDA programs or grants.
- None. I have moved myself toward operating a farm by continuing to work on local farms and by completing OSU's growing small farms class.
- Aero. There's not a lot of encouragement out there for this kind of thing.
- Partial scholarship to growing farms program.
- Apprenticeship classes; mentor.

5. What barriers are currently preventing you from moving forward with your plans for operating a farm as a business?

- Not enough farmers markets, places to sell produce. Cost of food is very low. Farming is huge huge amounts of work and it is almost impossible to make a living/have health care. Also very few banks interested in giving loans to farmers for land. Certification for organic status is very costly.
- Allocating the necessary time.
- Funding and available labor.
- My daughter has one more year of high school.
- Capital acquisition.
- Little demand for locally and naturally grown foods.
- In general, the barriers experienced by the producers in Western Washington are a result of county taxation but also the absence of farm programs sponsored by the USDA that could benefit small scale, or just simply organic producers.
- Money. I don't have enough money to start my own operations, and I can't survive without making a paycheck. Also, I'd like to gain a little more experience and knowledge about tractoring and building farm infrastructure (greenhouses, irrigation lines, etc.)
- Land, capital.
- Practical experience.
- Capital. Access to land (goes back to capital). Market analysis (need a place to grow, and need to know there is a diverse market opportunity there so that I can make a living/keep farming). Health Insurance (goes back to having capital). Having a business partner (I don't want to farm alone).

6. What kinds of assistance do you feel would help lower those barriers?

- Government support and increased awareness of the actual cost of food.
- Low interest loans for starting new project.
- Knowing what crops would likely have the most chance for success.
- 1)FoFF has offered to provide help with convincing local conventional farmers to transition, 2) How to find reliable help as I set up infrastructure, 3) Grant opportunities.
- Just completing my education, toward my end.
- Education about resources and opportunities for grants and other funding sources for organic farming.
- More education and increase awareness of the people of Portland Metro area about the benefits of local, seasonal, organically/naturally grown food.
- I think about this often, but I have yet to come up with a program that would help farmers from the National USDA office. I think that those who own agriculturally designated land should be provided with incentives to keep the land in ag. Much like the FSA's DCP program, there needs to be incentives paid that make the landowners want the land kept tillable, versus trying to find ways to get the land rezoned in order to sell it for a subdivision. In addition, I feel that since crops are being subsidized at the national level by the USDA in the grain producing areas of the nation, subsidies could also be paid to organic producers to offset some of their heavy labor costs. The main thing that needs to change is education. People need to be educated about the values of organic food and more importantly, local food. Perhaps incentives could be paid to local producers and local buyers by the USDA for the savings of fuel in transportation of distant grown food, chemical inputs, environmental impacts, etc. We simply need an education campaign that

explains the cons to purchasing the cheapest food produced and explains how the rest of the world pays for their food. People need to buy local to help local economies, help the environment, improve health, and value quality food. Only education can slowly make these changes.

- Access to affordable land, access to small business loans, access to some farm equipment (maybe shared) without having to purchase it.
- Long-term lease options.
- More assistance available to get started.
- Better grants/loans for beginning farmers to help w/land acquisition. Farmer health insurance co-op.

Notes of Results of FoodShed Survey at NWHS Meetings

For the Foodshed committee:

This survey was conducted at the North Willamette Horticulture Society Meeting held January 11-13th, 2011. Three producer-group sessions were held, one each day, over the course of the meeting. The survey was administered each day. Some individuals stayed for the duration of the meeting; thus respondents were asked to answer survey questions only one time, on the first day they attended a session, even though they may have been a part of more than one producer group. Additionally, each farm attending the meeting had only one respondent, to avoid duplicate responses. The organic session was administered on the first day of the meeting, vegetables on the second, and berries on the third day. As such, berry producer participation for the survey is expected to be low and the berry data may not be entirely representative, since many berry producers already responded in another session.

There were five individuals who responded to only one to four questions. The survey answers from these individuals were left in this data set, but may be excluded in future analyses.

Slide 1: County of Residence

Sixty-two percent of all respondents reside in the Portland-Vancouver Metro area (Clackamas, Washington, Multnomah, and Clark counties). Fourteen percent of all respondents reside in Marion county. None of the respondents of this survey were from Columbia county, and only 2% were from Polk county. The remaining respondents were from Yamhill (6%), Linn or Benton (5%) or other counties (9%).

Please note that the berry session's county of residence is not representative of actuality. The major berry producing counties include Marion and Clackamas county.

Slide 2: Principle Farm Operator Gender

Eighty-seven percent of all sessions surveyed stated that the principle farm operator is male. This is similar to the U.S. average of 86% male principle farm operators (U.S. Census of Agriculture, 2007). The statewide average for Oregon, however, reveals that 78% of farmers are male and 21% are female. (U.S. Census of Agriculture, 2007).

The results for the organic session, which has a higher average of female principle operators (23%), is also similar to the U.S. average of 22% female principle operators, (U.S. Census of Agriculture, 2007), and closer to the statewide average for Oregon.

Slide 3: Principle Farm Operator Age

The average age of an Oregon farmer is 57.5 years old (U.S. Census of Agriculture, 2007). This is similar to our results which indicate that 32% of farmers surveyed were between the ages of 51 and 60 years old, with 73% of farmers surveyed between the ages of 41 and 70 years old.

Only 4% of farmers surveyed were under the age of 30. The U.S. average of principle farm operator's under the age of 25 is 0.5% (With 4.8% of U.S. farmers from 25-34 years of age).

Slide 4: Percent of Principle Operator's Total Household Income that comes from the Farming Operation

The results of this survey show the majority of farmers are either full time farmers (33%) or lifestyle farmers (27%).

In Oregon, 46.2% of producers list farming as their primary occupation; however, 65.8% of farmers partly work off-farm. (U.S. Census of Agriculture, 2007).

Nationwide, 36% of all farmers are lifestyle farmers and 21% are retirement farmers; these two groups make up the largest portion of farmers nationwide. Both groups gross less than $250,000 a year and have either a primary occupation off the farm or are retired.

Slide 5: Satisfaction with the Size & Production of the Operation

The majority (56%) of all farmers surveyed would like to expand both output and revenues, while reducing costs on their farm. Meanwhile, the highest percent of farmers satisfied with their size and productivity were organic producers (35%).

Slide 6: 2009 Gross Farm Sales

Forty five percent of producers surveyed had 2009 gross sales of $250,000 or more.

Contrary to this survey, nationwide, only 9% of large and very large farms grossed over $250,000 in sales. Statewide, in Oregon, 83% of farms gross less than $50,000 annually (U.S. Census of Agriculture, 2007), while this survey shows that 32% of respondents grossed less than $50,000 in 2009.

Slide 7: Total Acres Generating to Gross Farm Sales

Forty-one percent of producers surveyed are farming 100 or more acres. Organic session respondents are more likely to farm small acreages of less than 5 acres (22%) than are other session respondents.

Contrary to this survey, the statewide average in Oregon indicates that 25% of farms are <10 acres, and 62% are <50 acres, with farms in the Northern Willamette region being smaller than the statewide average (See slide 23).

Slide 8: Percentage of Owned versus Leased Land Contributing to Gross Farm Sales

Fifty-four percent of the producers surveyed either own all or the majority of their land. Organic farmers are more likely to lease a majority of their land (61% of organic producers lease 50-100% of their acreage).

Slide 9: Farm Operation Acreage Uses

Eighty-five percent of the producers surveyed have farms that are primarily cropland. This percentage is higher than the state and national average due to the type of producers that were gathered at the NW Horticulture Society meeting, when the survey was conducted.

Slide 10: Percentage of Gross Farm Sales from Processing/Packing of Products

Over half (52%) of session participants surveyed added no value to their products through processing and packing. Vegetable session respondents are most likely to process and/or package products, however, 40% of them still receive less than 25% of gross sales from processing and packing.

Organic session respondents are least likely to add value to their products through processing and packing.

Slide 11: Marketing of Agricultural Products Sold Directly to Consumers

Thirty-five percent of session participants surveyed sell products directly to consumers through 100% Local Direct Markets. Note this is likely due to the higher number of organic session responses to this question than other producers, and organic producers are generally more likely to sell products through local/direct markets.

Slide 12: Annual Sales Generated from Organic Production

The majority of producers in this survey (62%) sell no organic products. Among the organic session respondents, only 35% sell all organic products and 43% of those in attendance currently sell no organic products. This group seems to be either interested in selling organically or in the conversion process. In Oregon, less than 0.5% of all farm acreage is Organic, (U.S. Census of Agriculture, 2007).

Slide 13: Primary Organic Certification System Used

The most widely used organic certification system used by the producers surveyed is Oregon Tilth, followed by the "other" category.

Slide 14: #1 Barrier to Producing or Expanding Current Markets

The number one barrier for farmers looking to produce or expand their current market is financing. This is reflected by vegetable and organic session respondents. Berry session respondents, however, primarily express labor as their highest barrier to producing or expanding current markets.

Slide 15: #2 Barrier to Producing or Expanding Current Markets

The number two barrier to producing or expanding current products is natural resources. However, only a marginal number of farmers expressed this concern over others such as labor, financing, and market size or access.

Slide 16: #3 Barrier to Producing or Expanding Current Markets

The #3 barrier to producing or expanding current production was regulatory issues. Note, however, that vegetable session respondents may have thrown off the accuracy of this issue in that a higher number of vegetable producers responded in comparison to organic and berry session respondents.

It may be fair to point out that after financing, farmers face a number of barriers to expanding current production, which may hold equal weight in limiting production and expansion.

Slide 17: #1 Natural Resource Barrier

There was no clear distinction between limited land, water limitations, and land quality as natural resource barriers of most concern.

Slide 18: #1 Labor Barrier

Clearly, the cost of labor is the number one labor barrier with all producer groups ranking it of high importance. Among vegetable session respondents, finding workers with the desired skills and training is also a barrier of concern.

Slide 19: #1 Financial Barrier

Access to capital is the number one financial barrier among most producer groups. Fifty-two percent of organic session respondents expressed "other" as a financial barrier. It is not clear what other financial barriers organic producers are concerned with.

Slide 20: #1 Market-Related Barrier

Market size and market channel access were of most concern to producers. Among berry session respondents, 23% of them also expressed concern with quantity requirements.

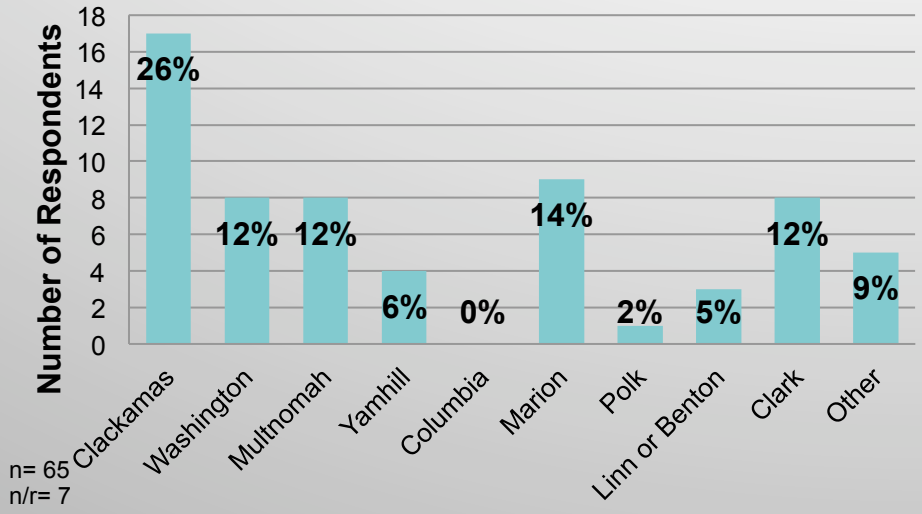
Slide 21: #1 Regulatory Barrier

There were no distinct regulatory barriers of concern. Labor laws and environmental regulations were of most concern to participants in the vegetable session, while certification programs were an issue for organic and berry session respondents. Market rules and regulations and other regulatory barriers were also an issue for those in the berry session.

Note: The last six figures can be used as reference material. They include data on Oregon farms taken from the 2007 U.S. Census of Agriculture.

County of Residence

All Sessions



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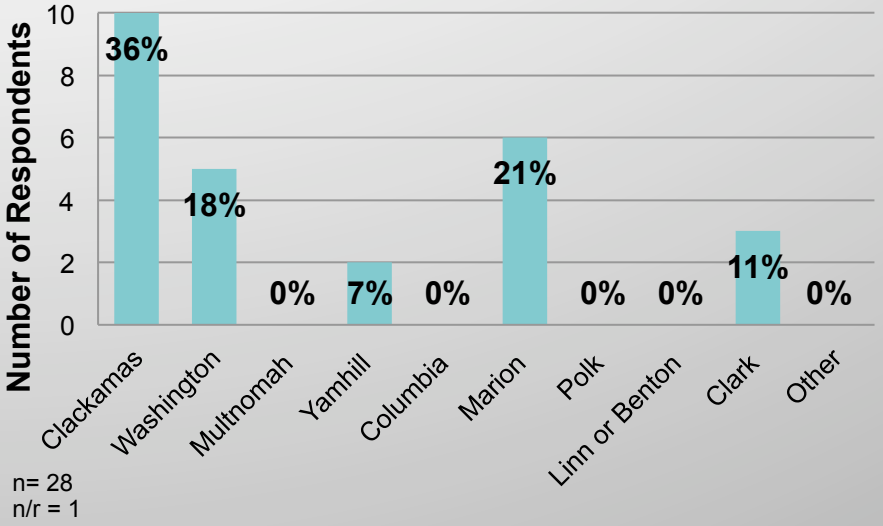
n/r= 7

Vegetable Session



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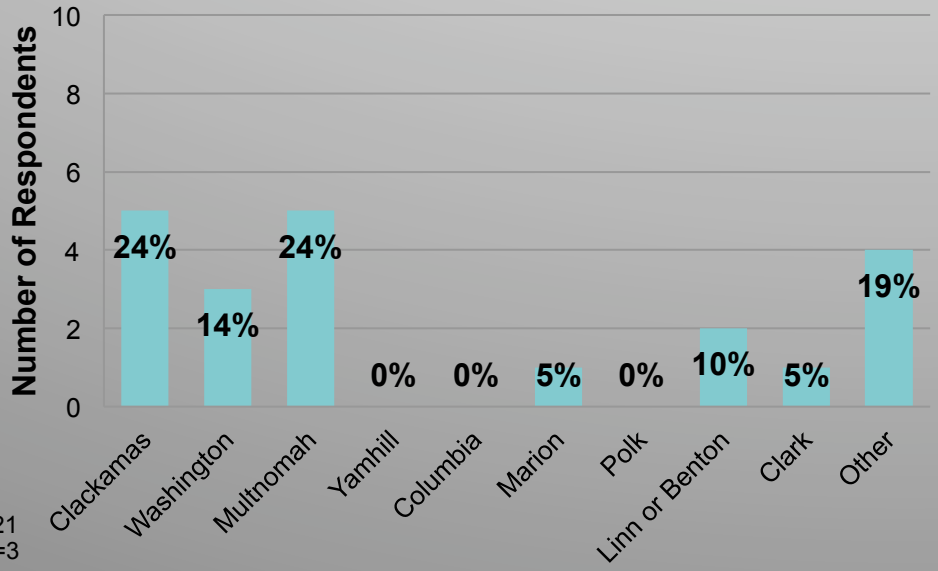
Organic Session



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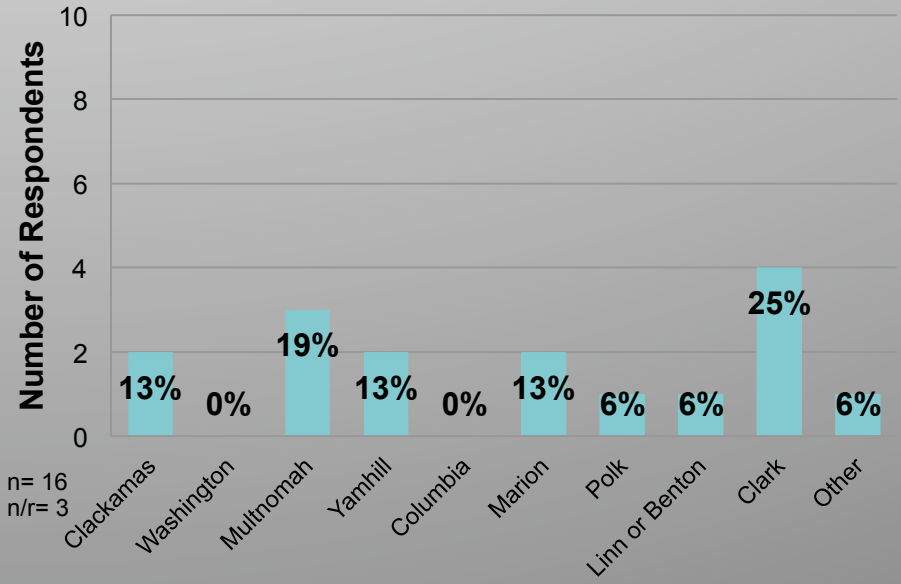
Berry Session



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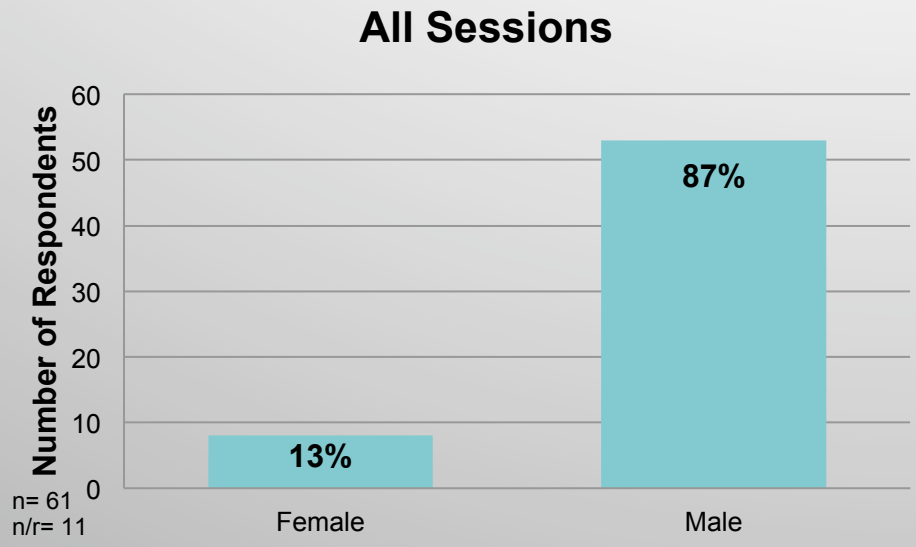
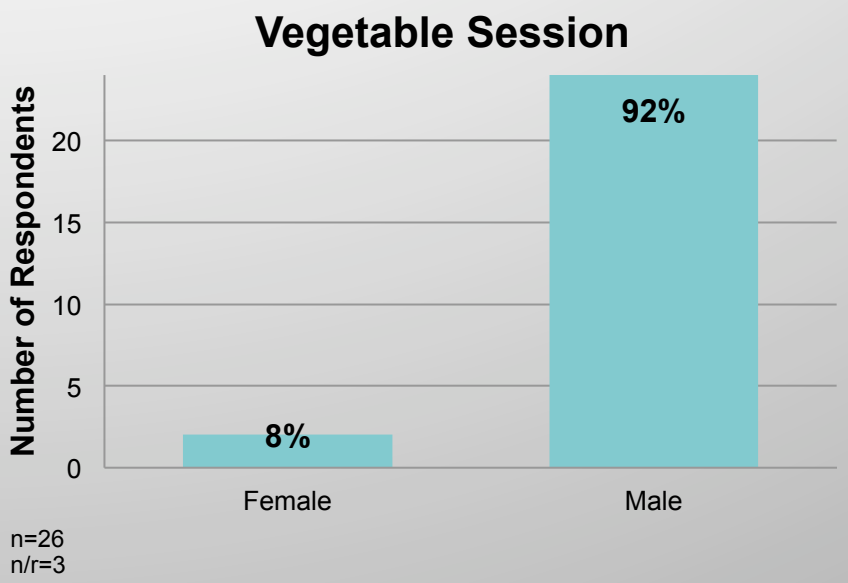
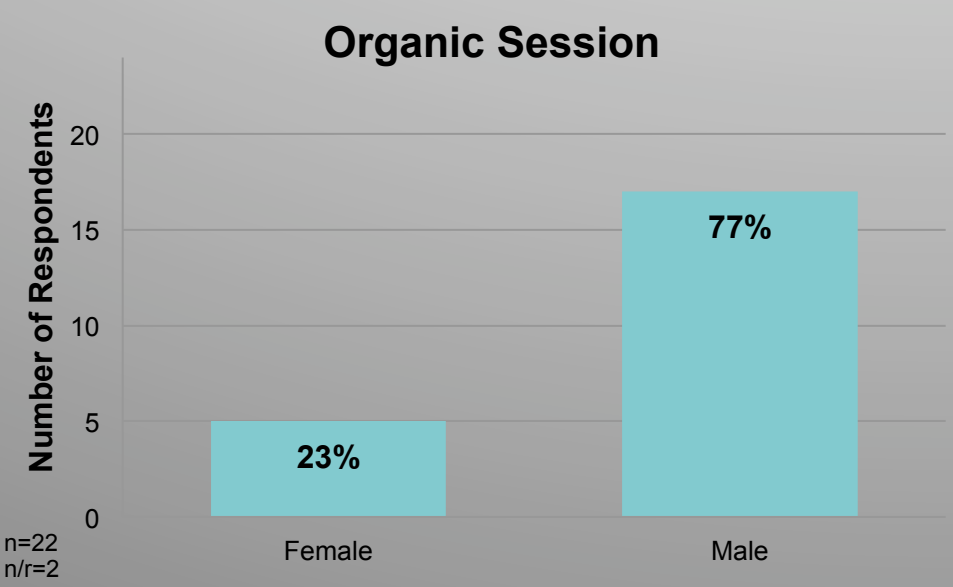
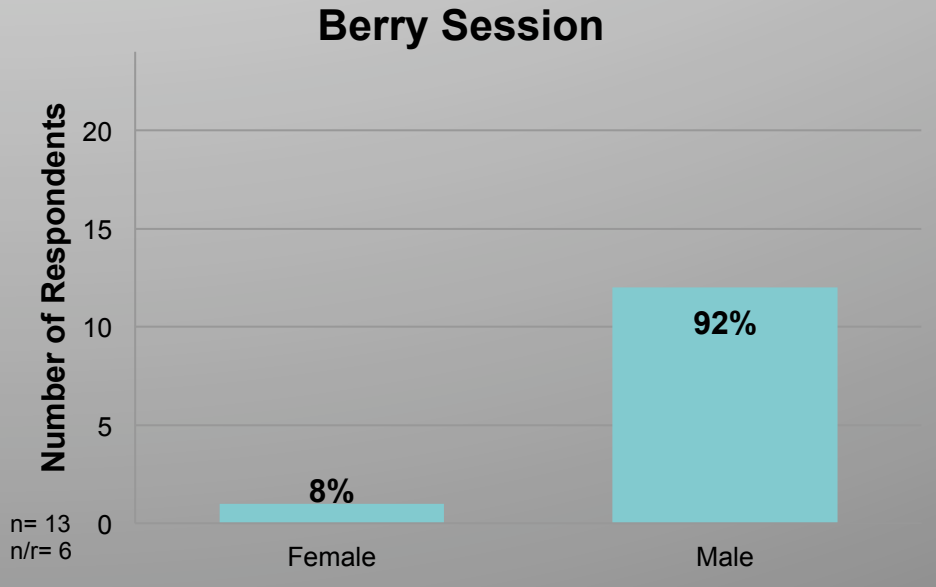
Principle Farm Operator Gender



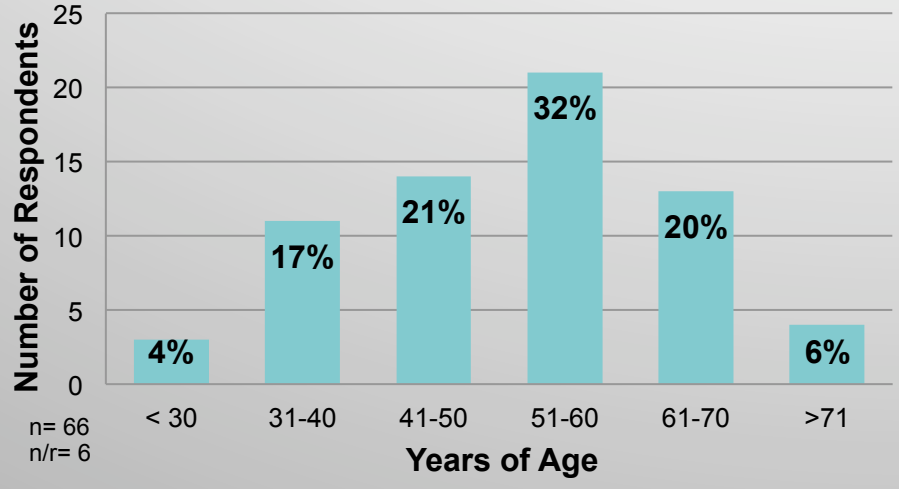




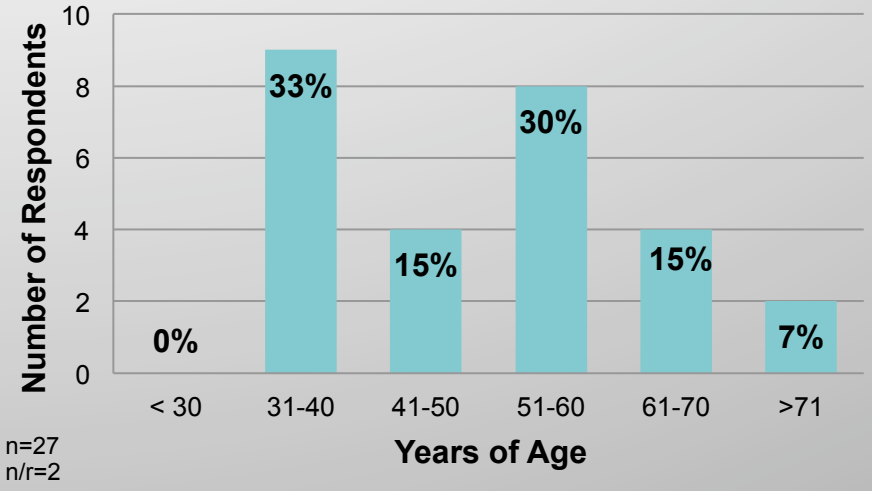


Principle Farm Operator Age

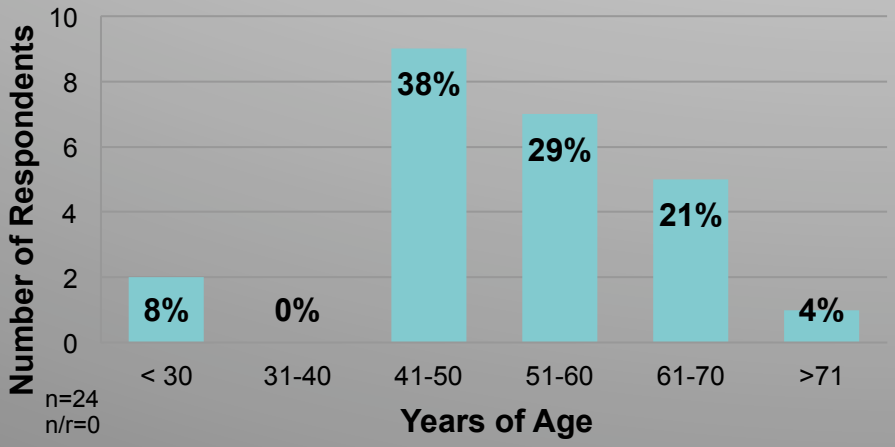
All Sessions



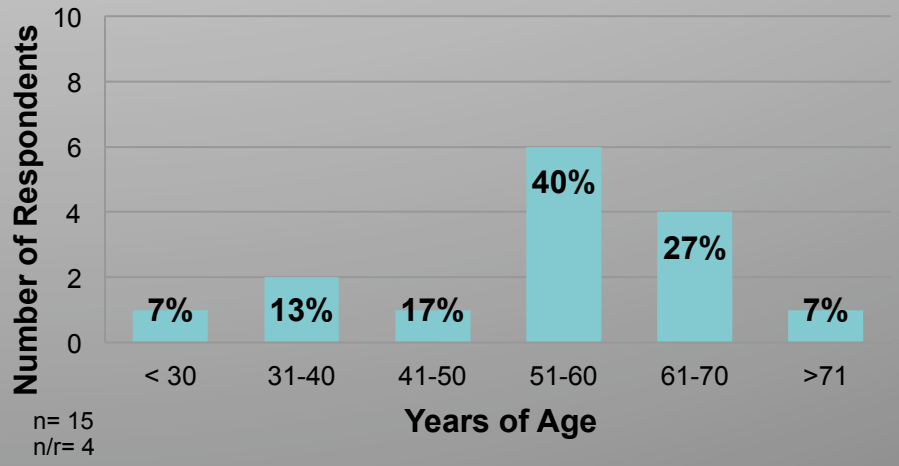
Vegetable Session



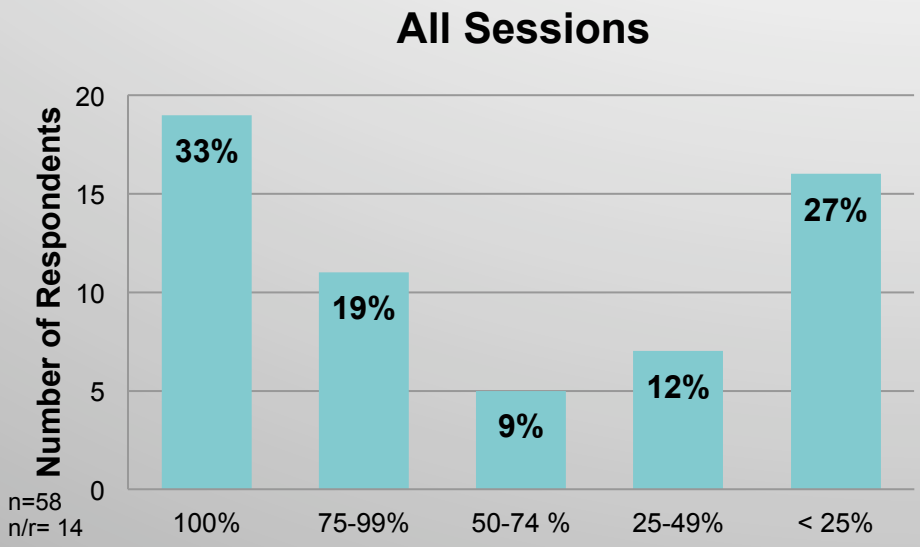
Organic Session

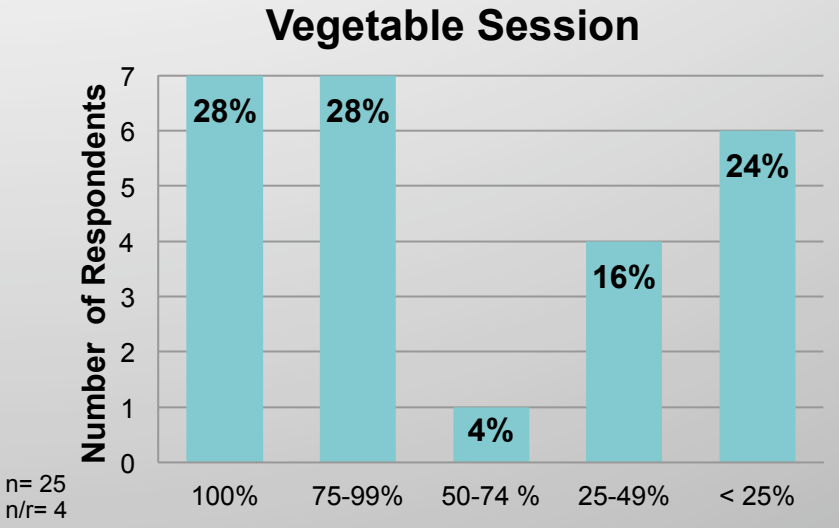


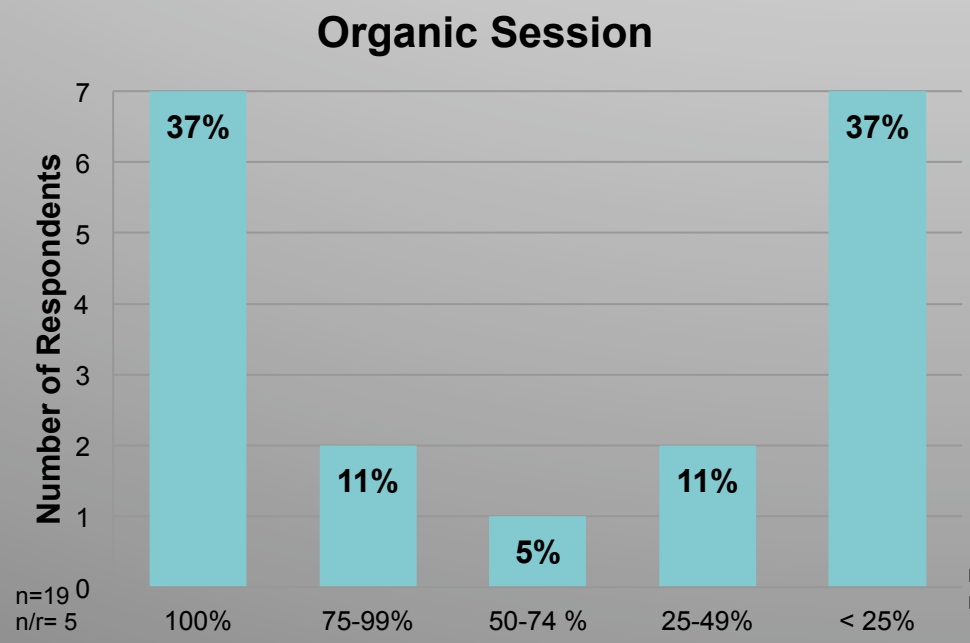
Berry Session

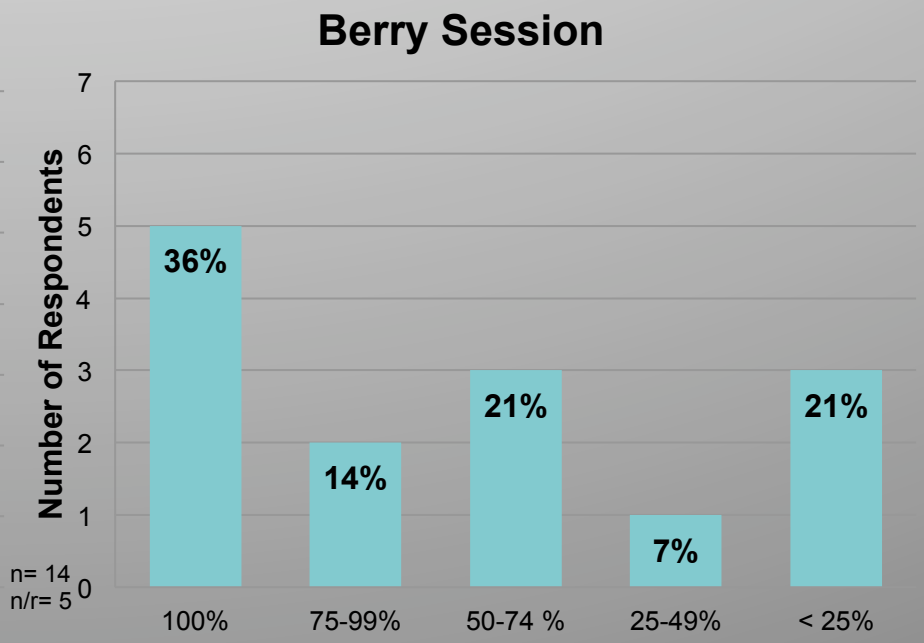


Percent of Principle Operator's Total Household Income that Comes from the Farming Operation

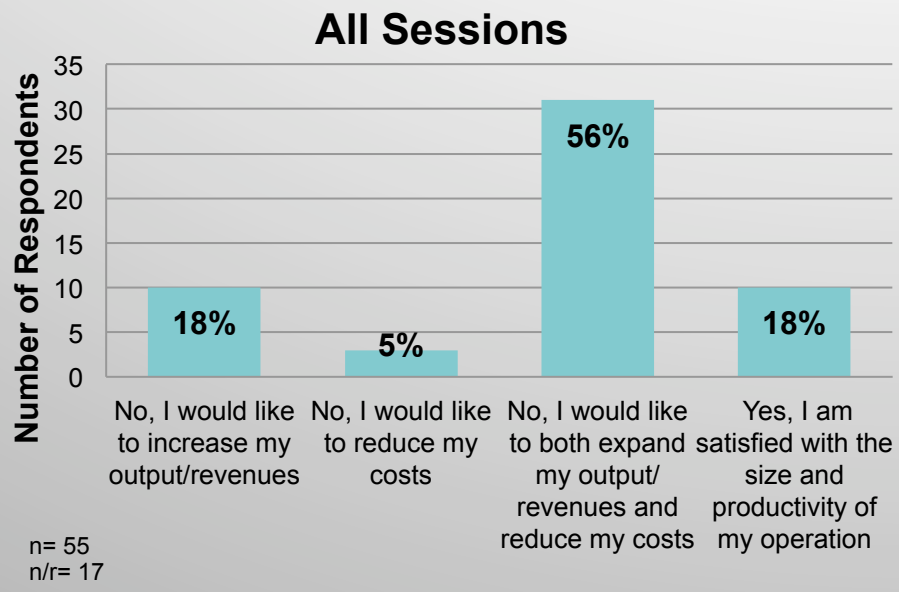




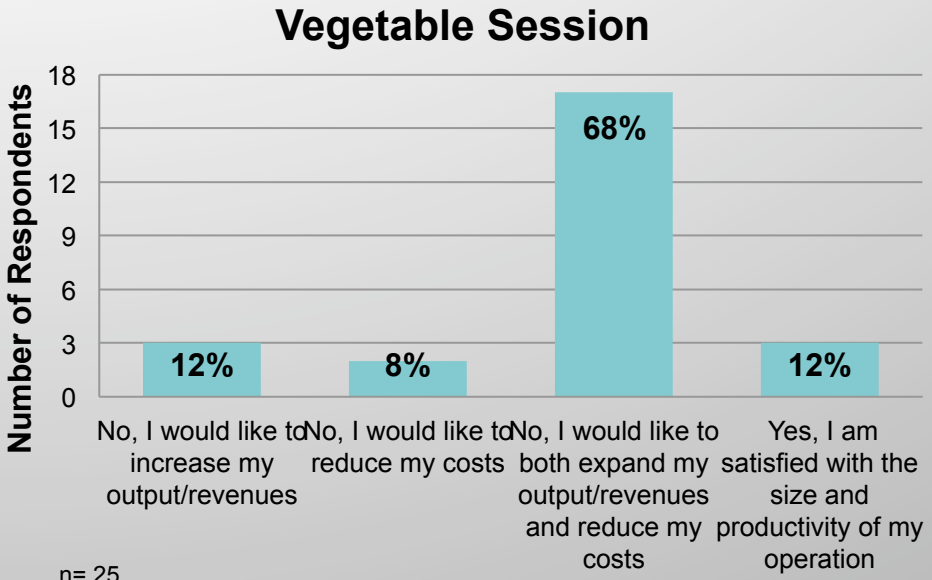




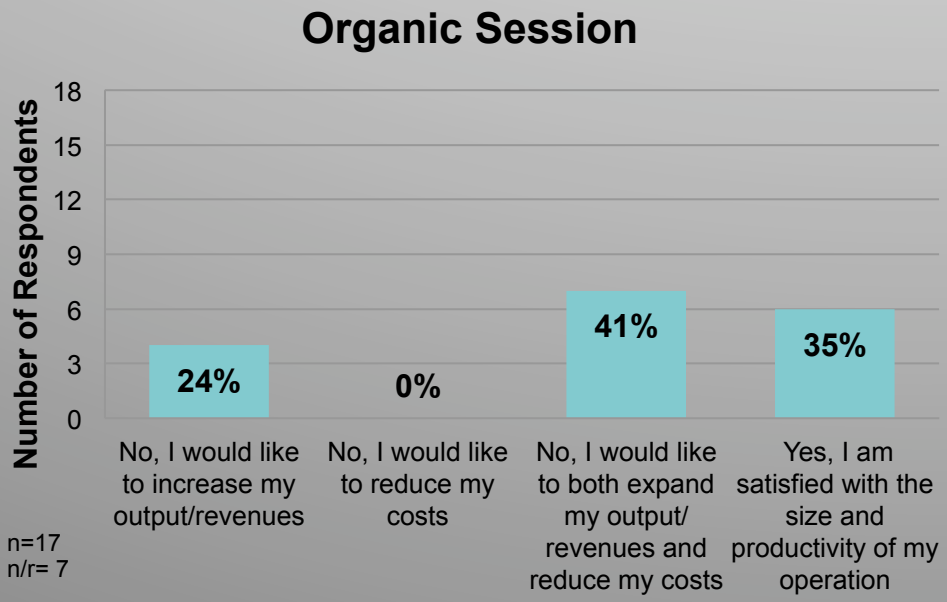
Satisfaction with the Size & Productivity of Operation



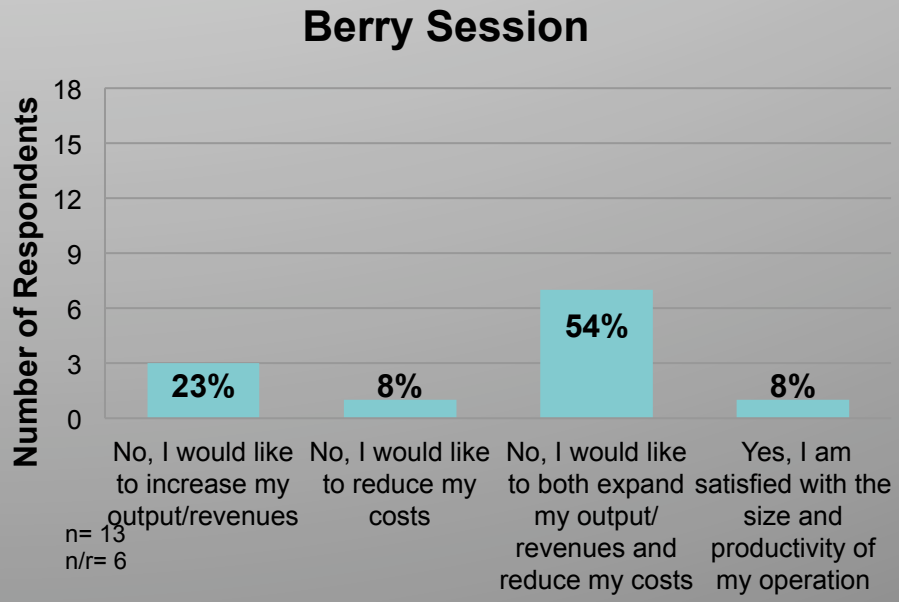
n= 55
n/r= 17



n= 25
n/r= 4

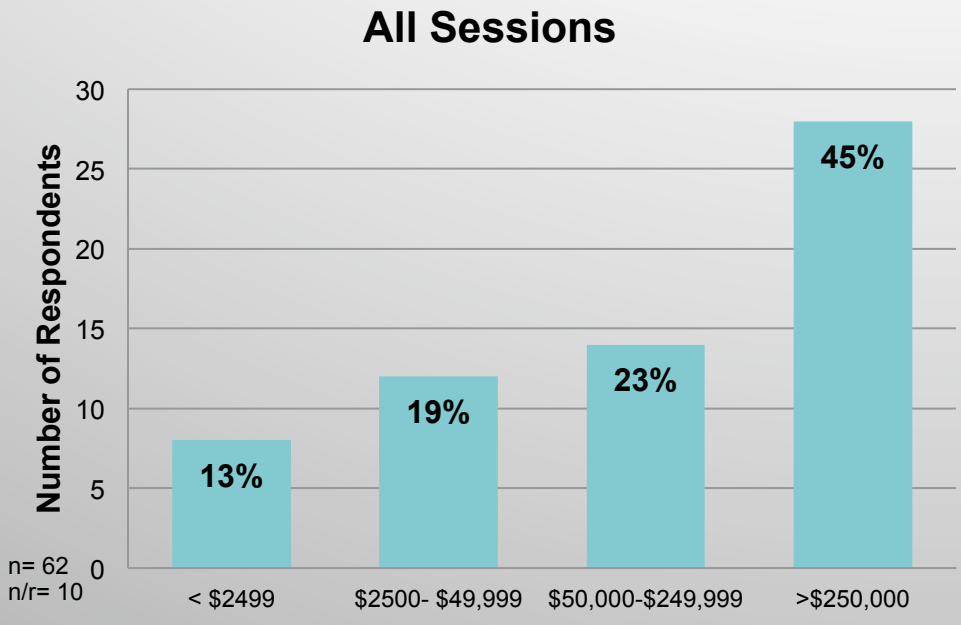


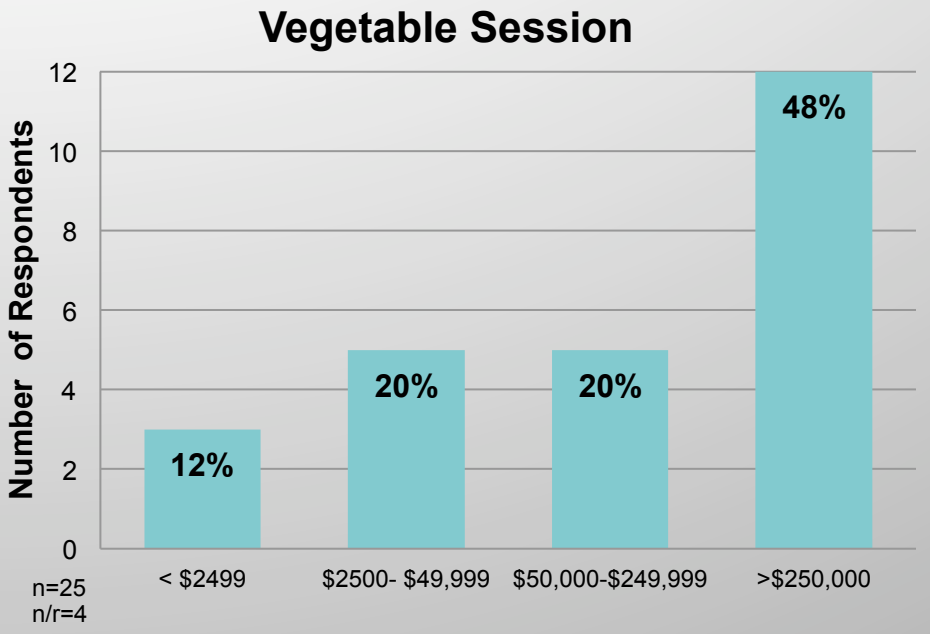
n=17
n/r= 7

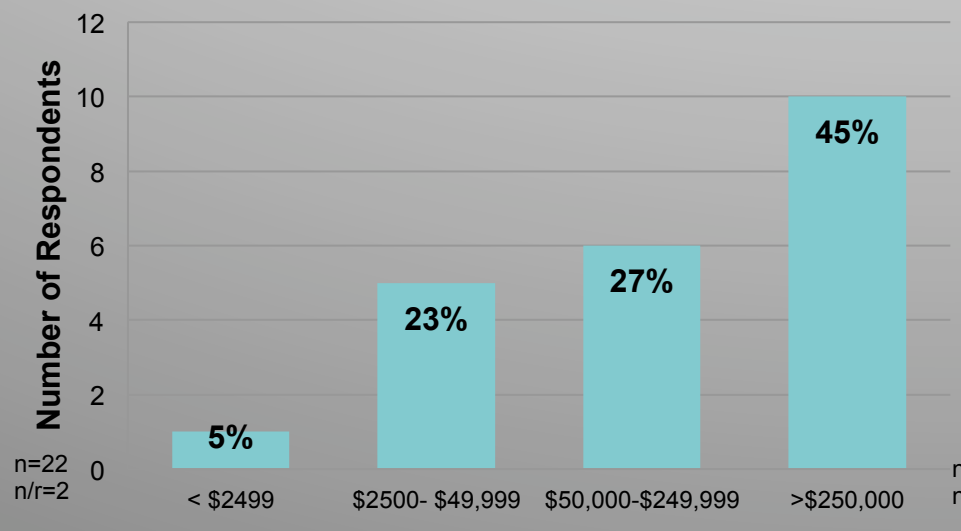


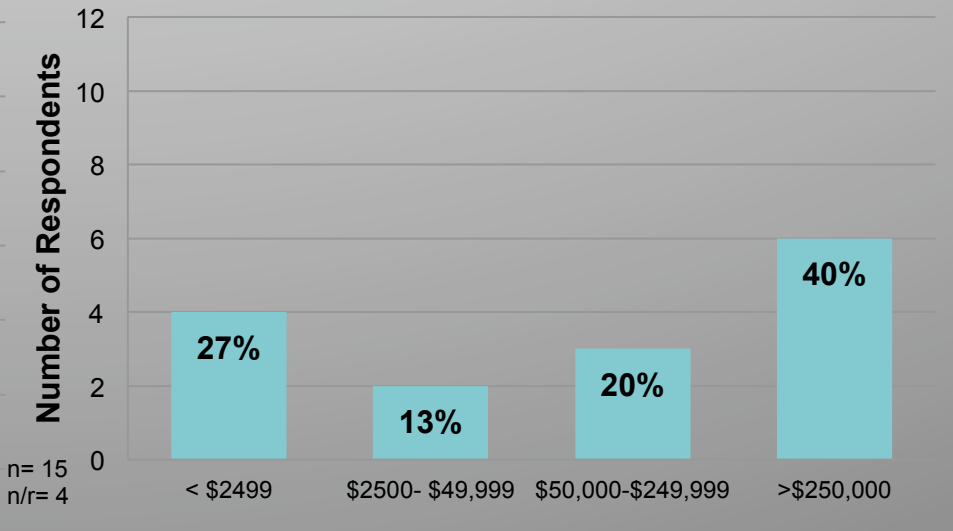
n= 13
n/r= 6

2009 Gross Farm Sales

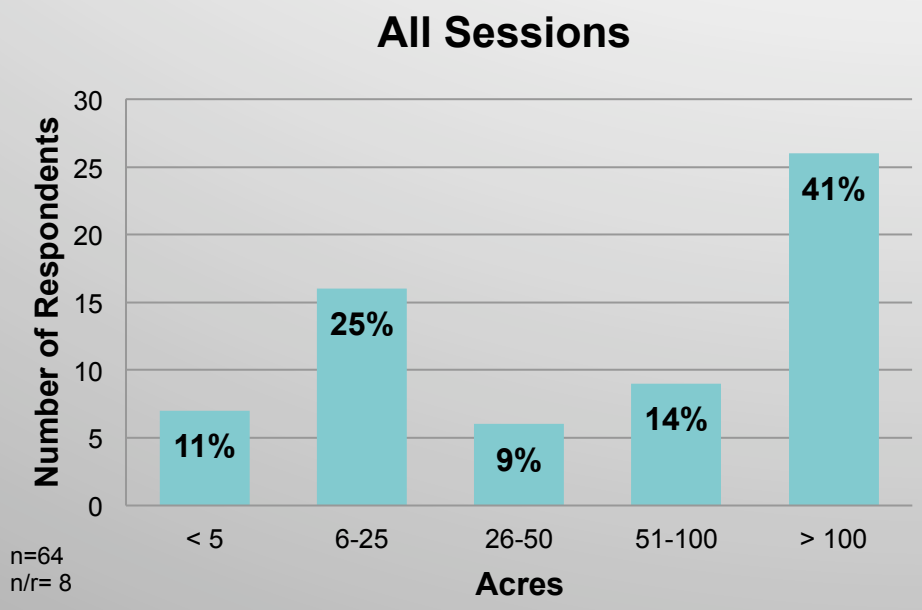


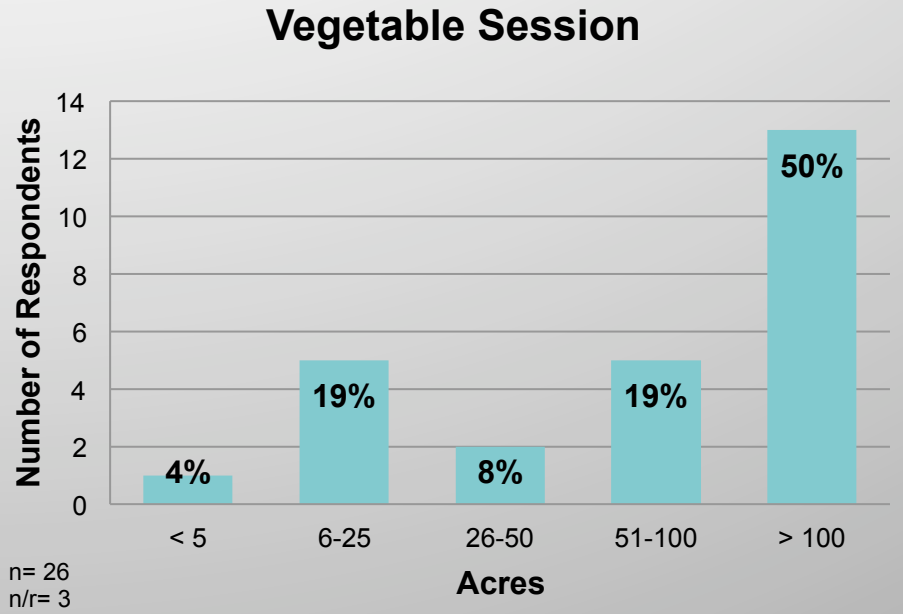


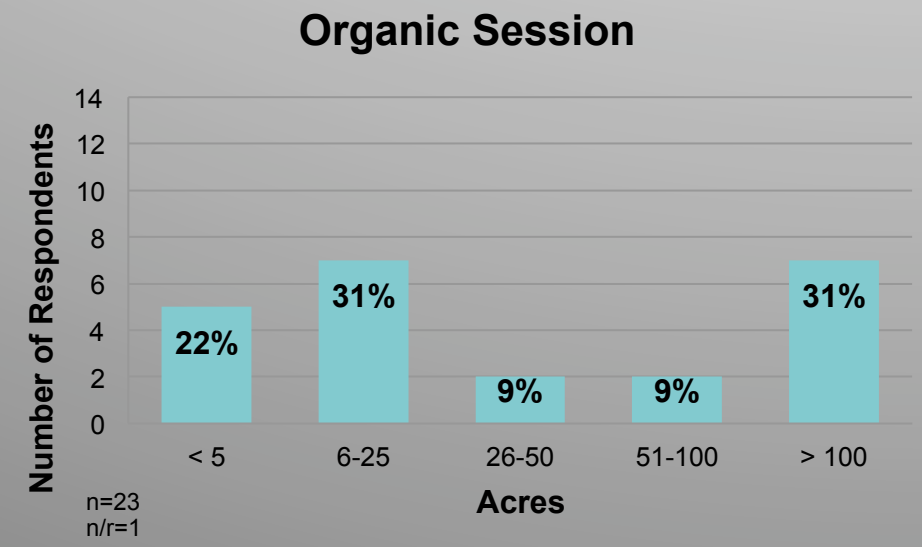


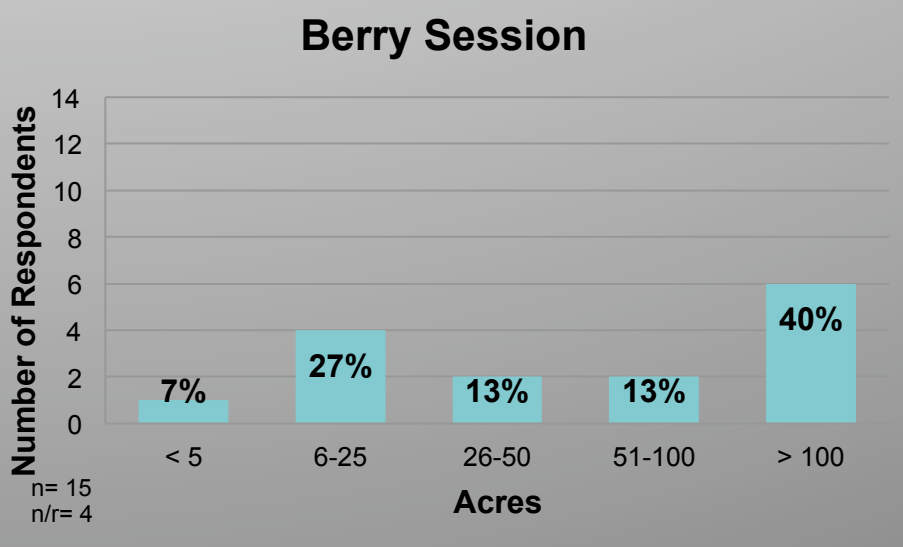


Total Acres Contributing to Generating Gross Farm Sales

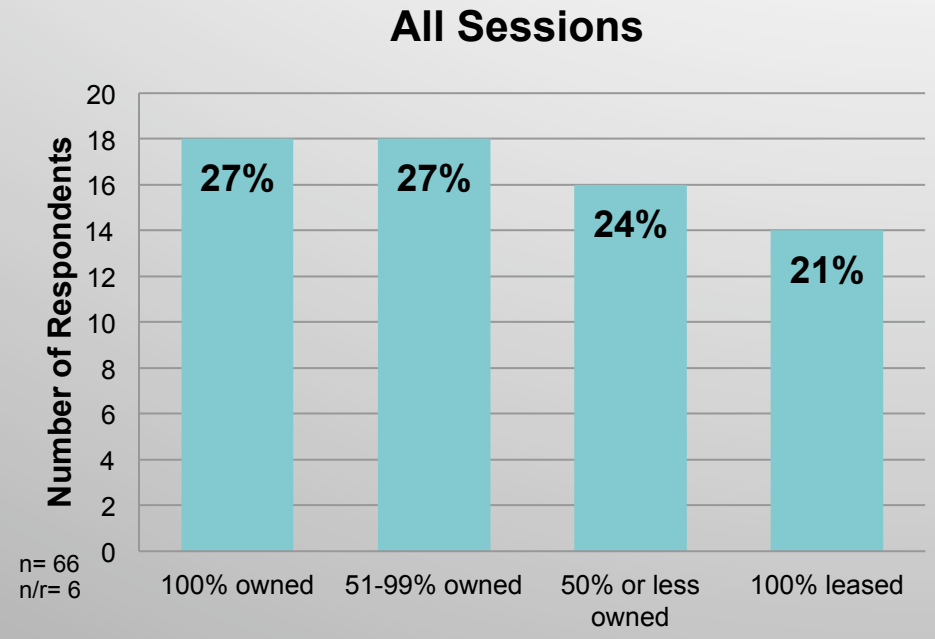


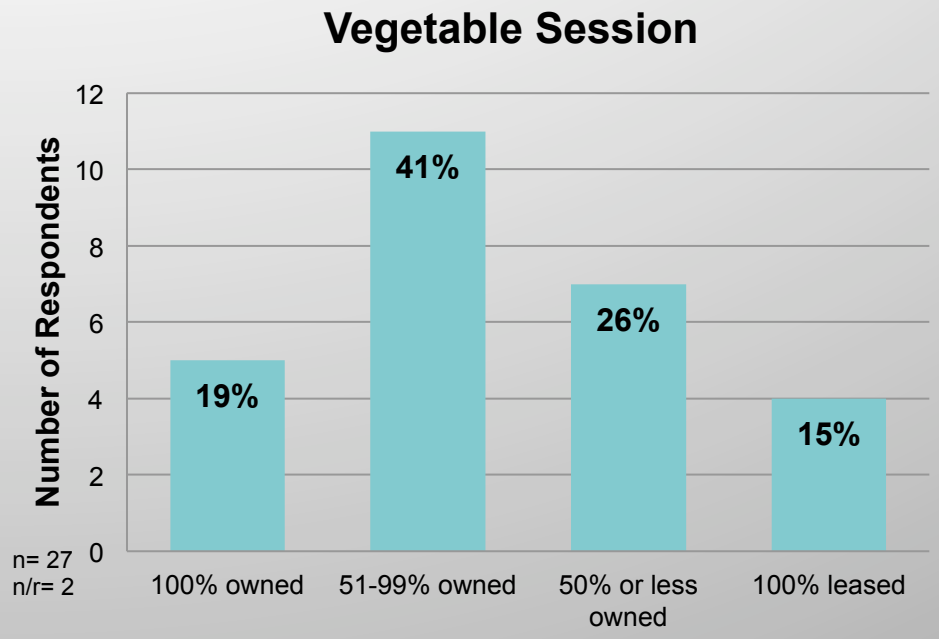


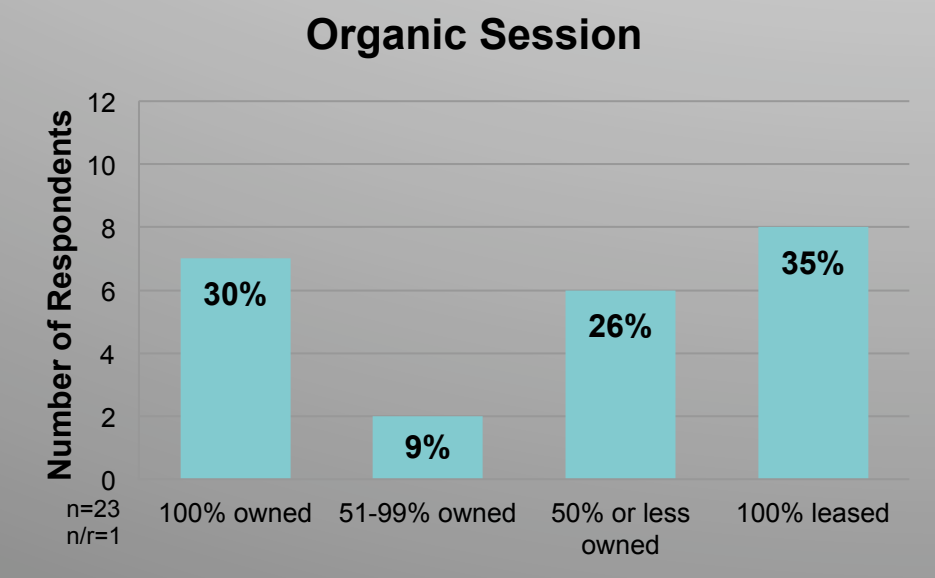


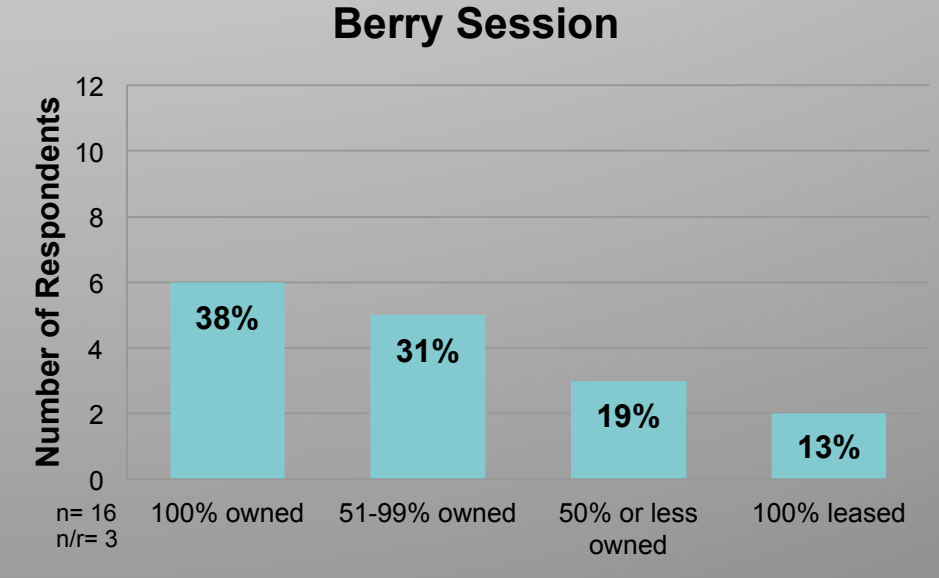


Percentage of Owned vs. Leased Land Contributing to Gross Sales



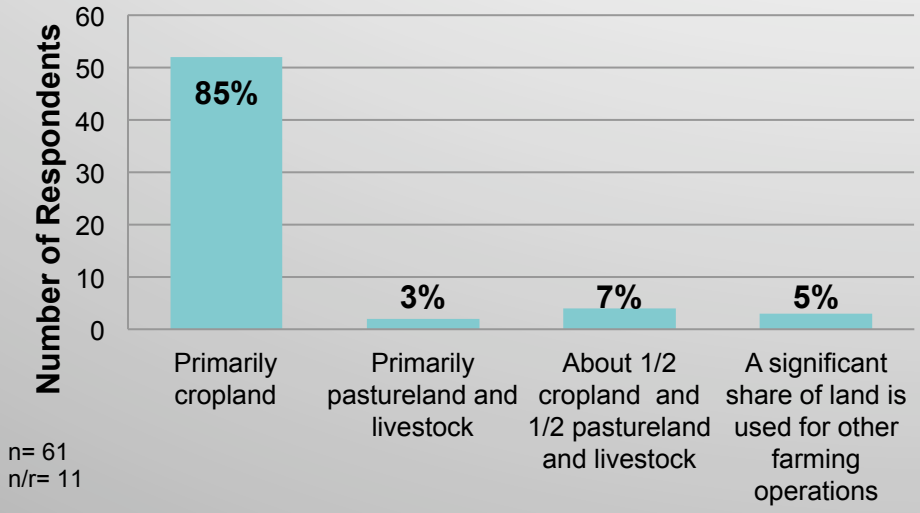






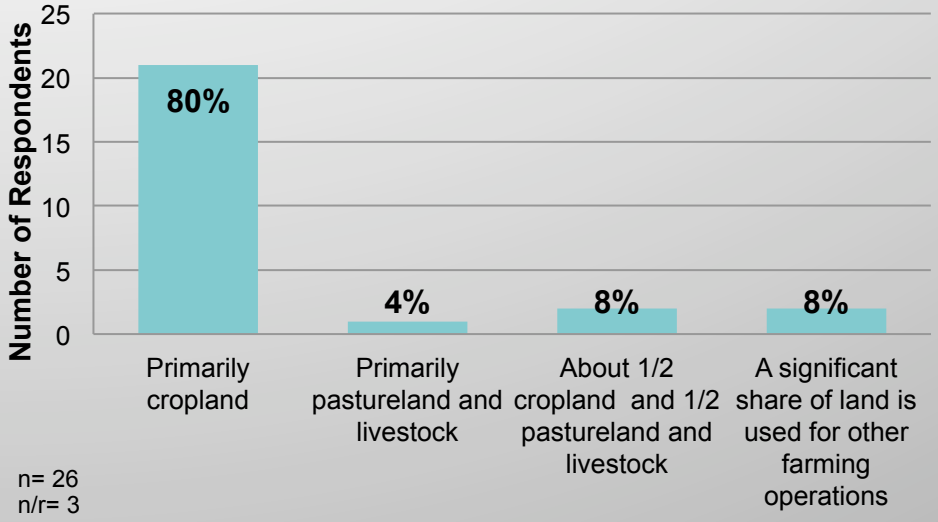
Farm Operation Acreage Uses

All Sessions



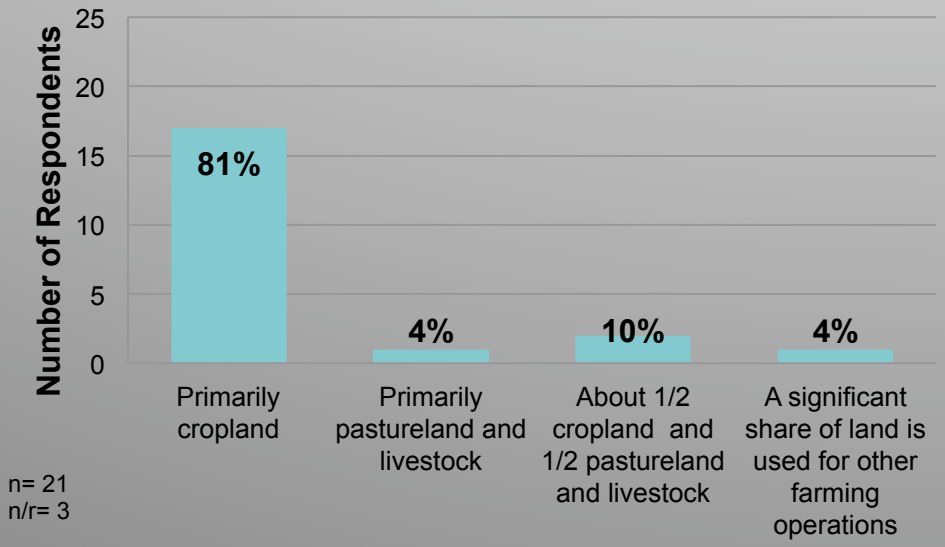
n= 61
n/r= 11

Vegetable Session



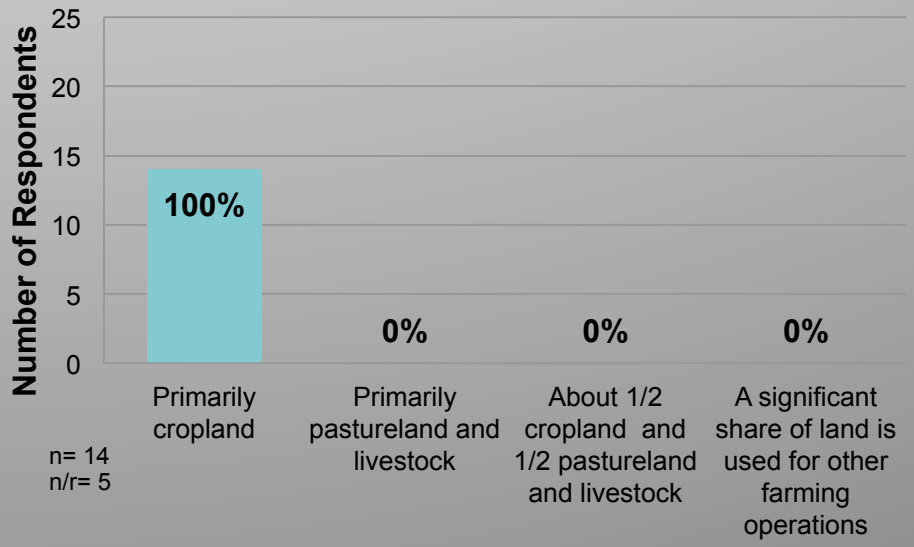
n= 26
n/r= 3

Organic Session



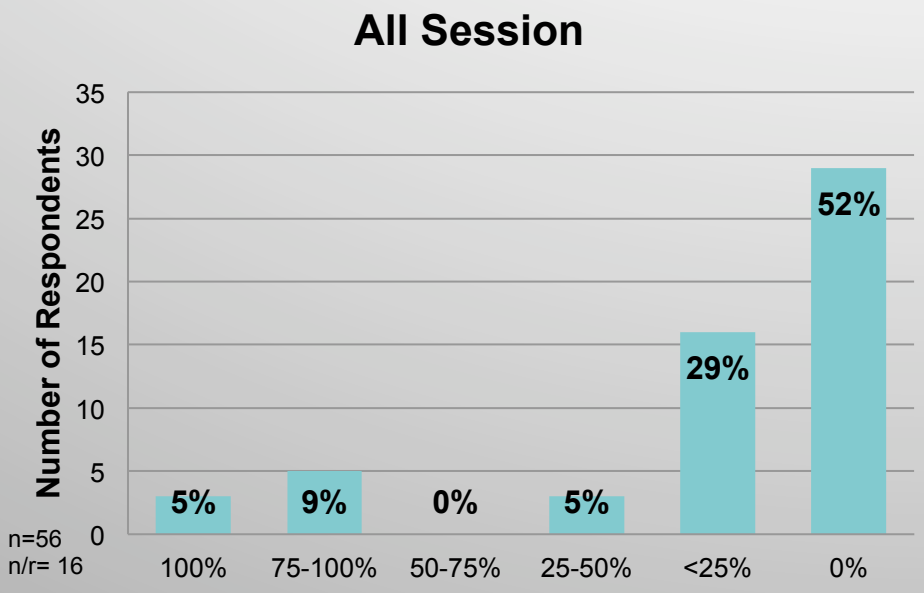
n= 21
n/r= 3

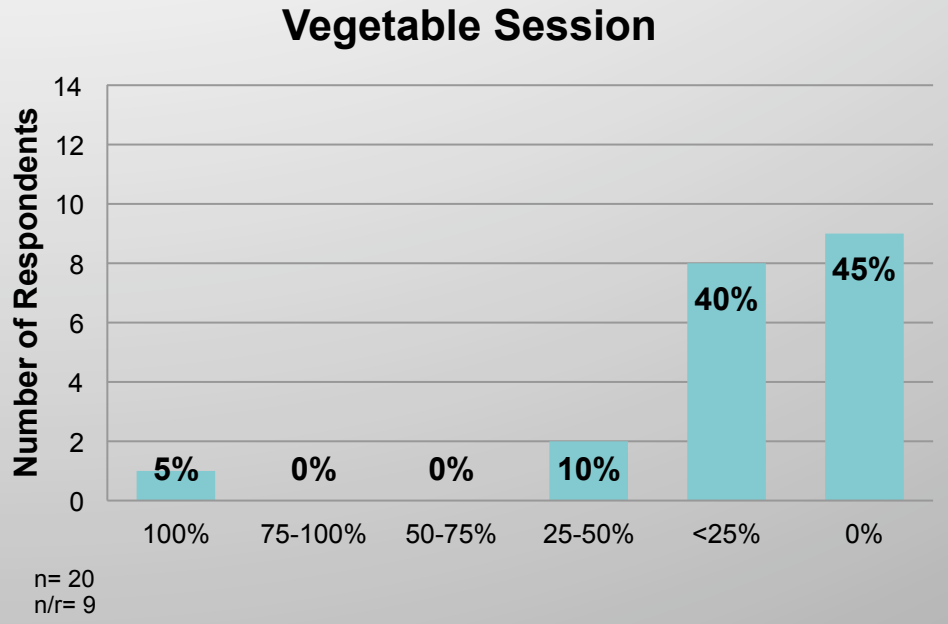
Berry Session

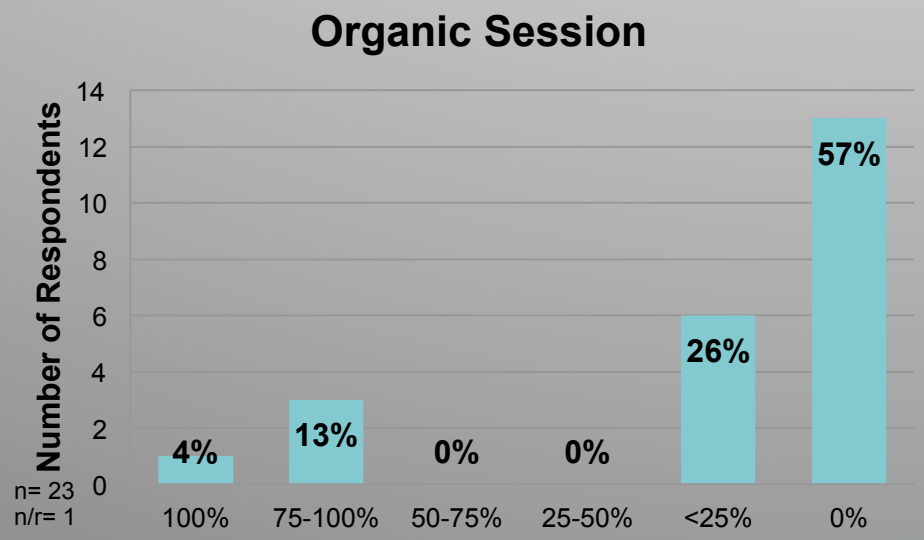


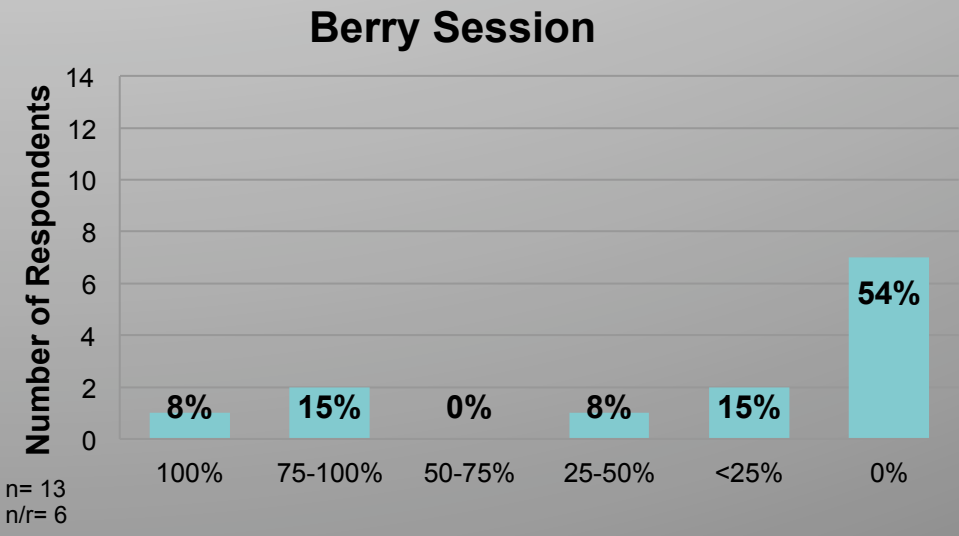
n= 14
n/r= 5

Percentage of Gross Farm Sales from Processing/ Packing of Products



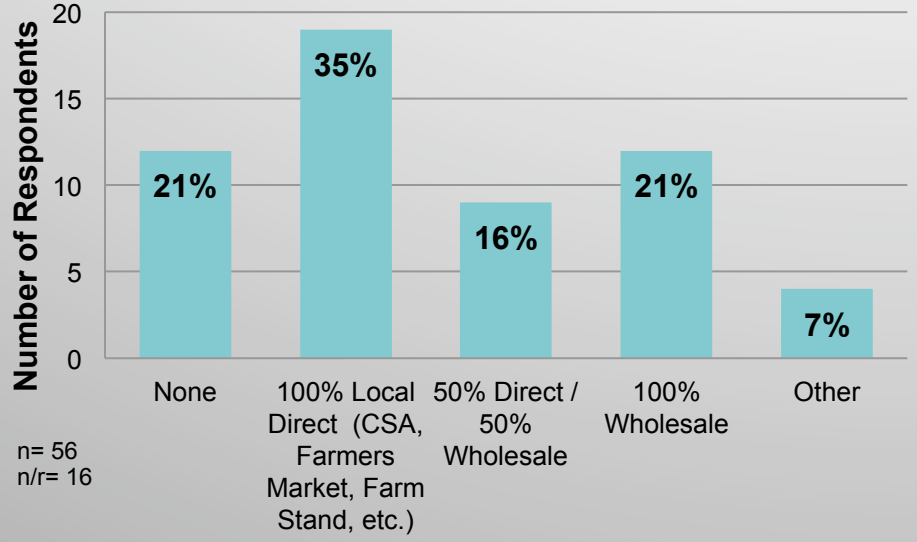






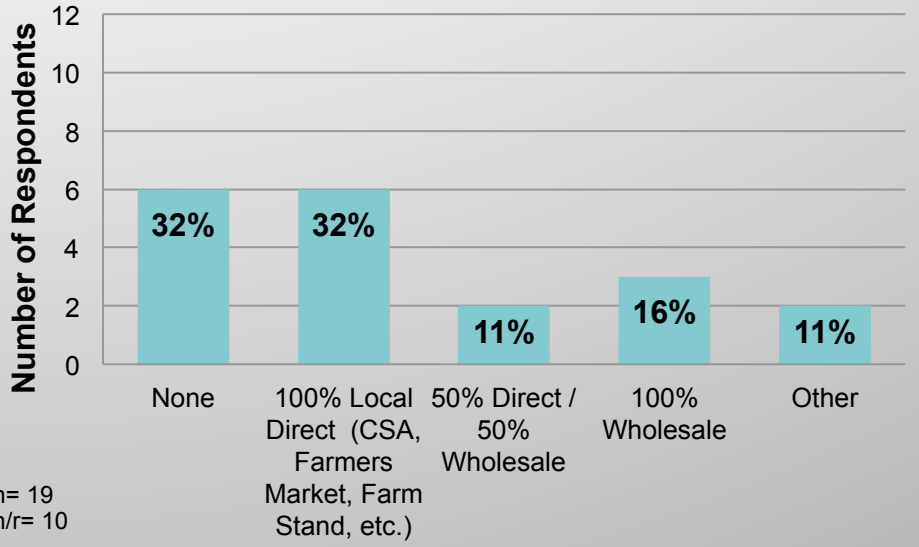
Marketing of Agricultural Products Sold Directly to Consumers

All Sessions



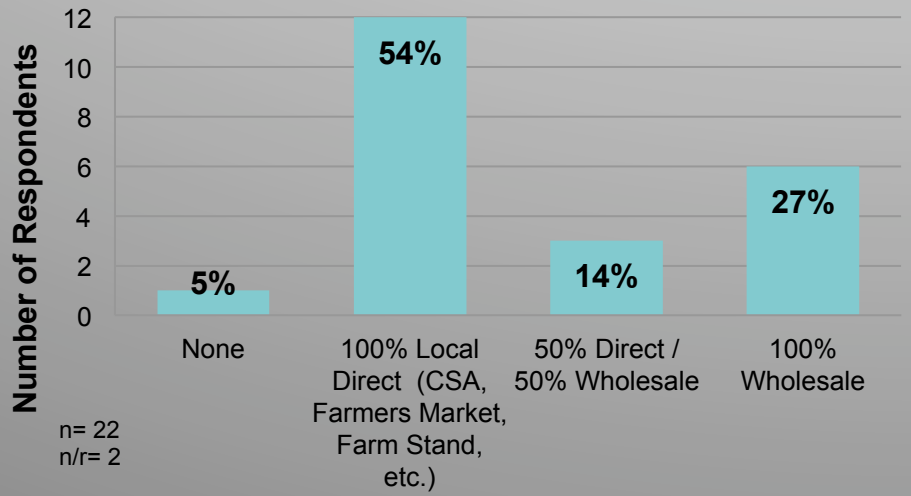
n= 56
n/r= 16

Vegetable Session



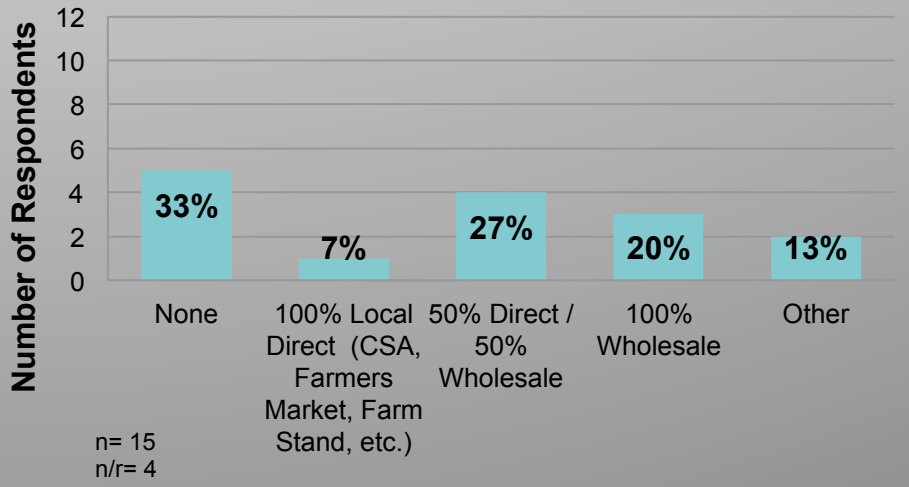
n= 19
n/r= 10

Organic Session



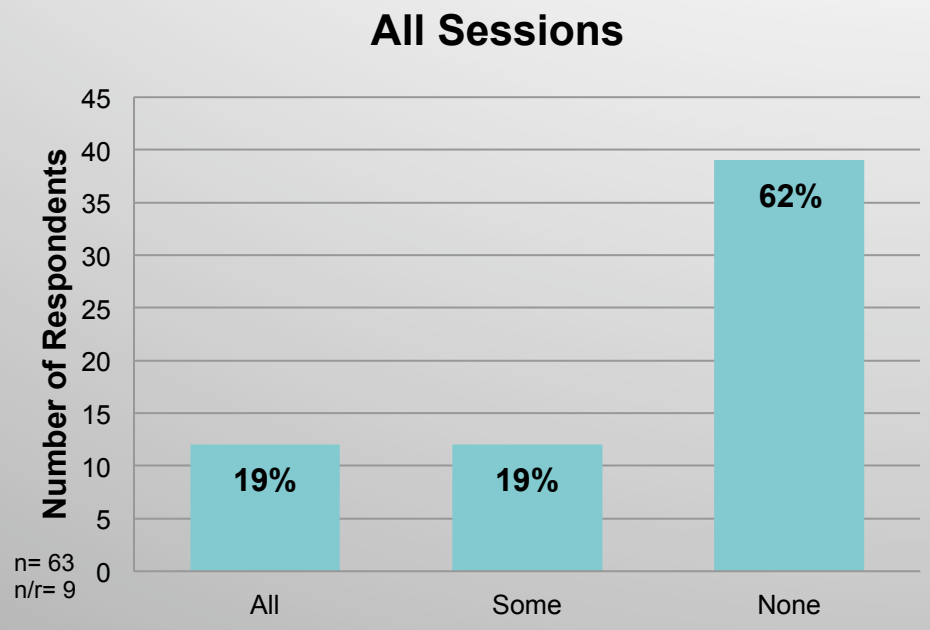
n= 22
n/r= 2

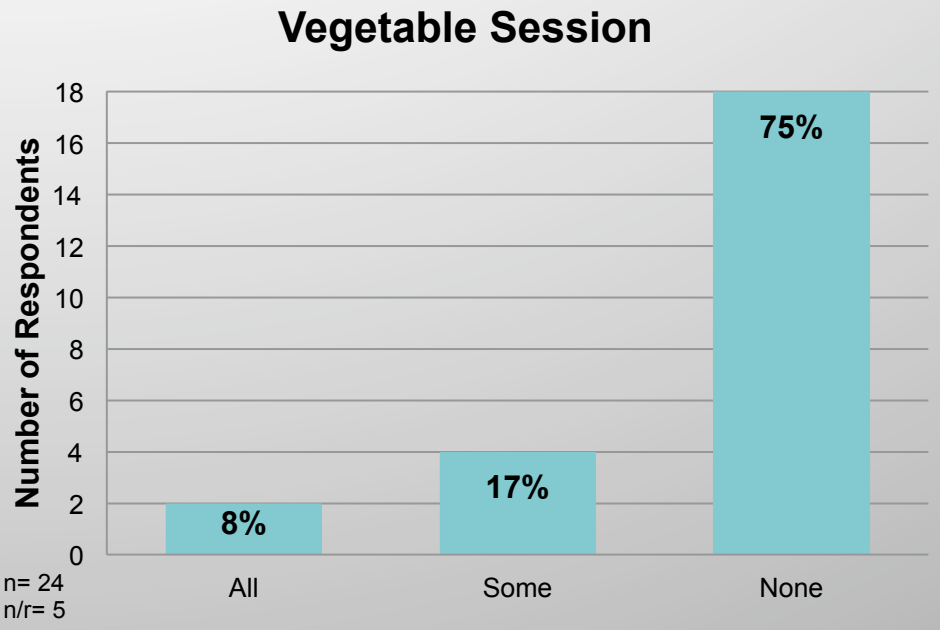
Berry Session

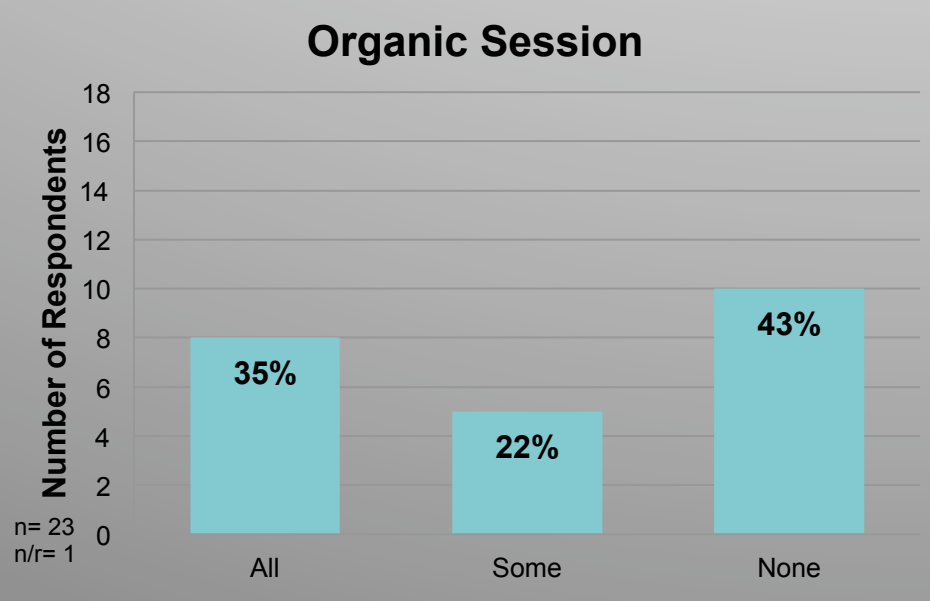


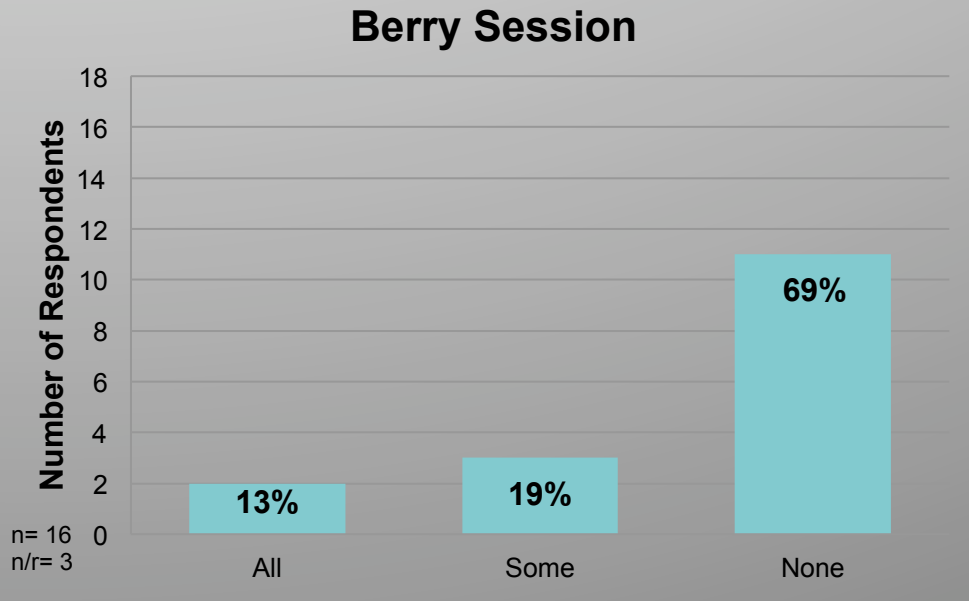
n= 15
n/r= 4

Annual Sales Generated from Organic Production

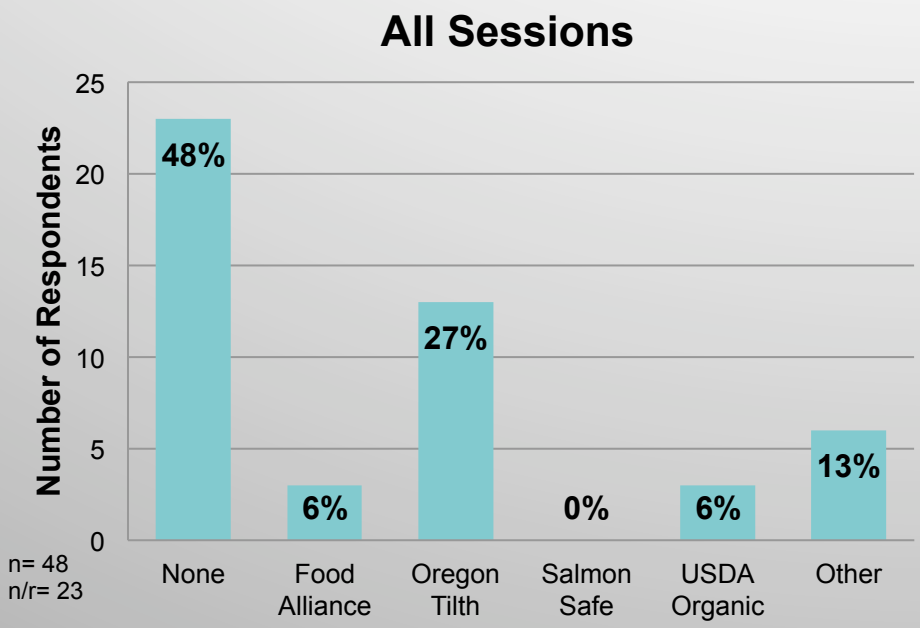


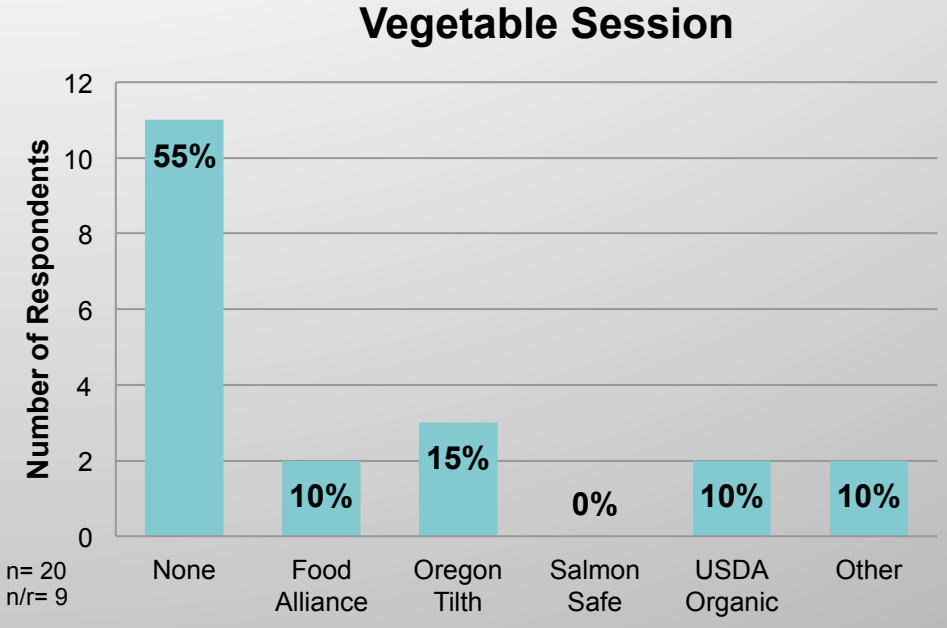


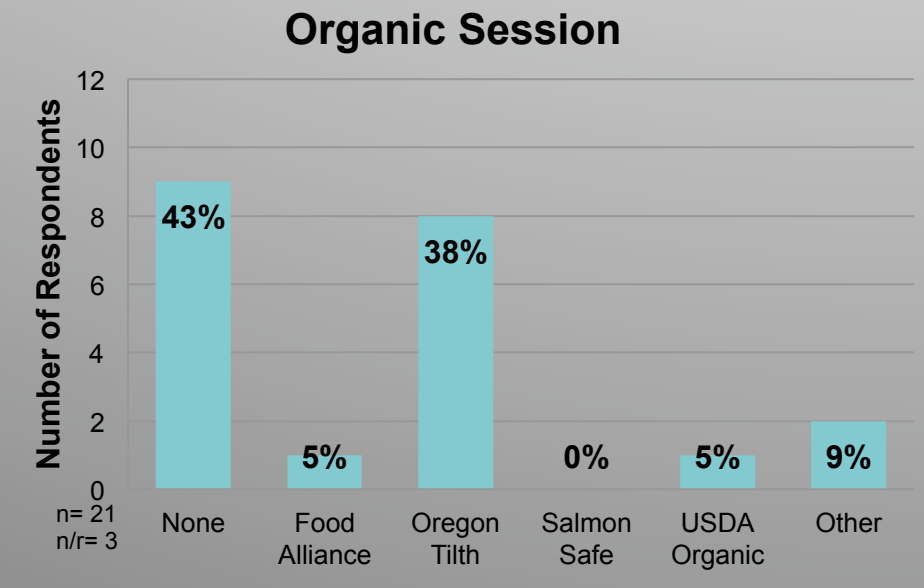


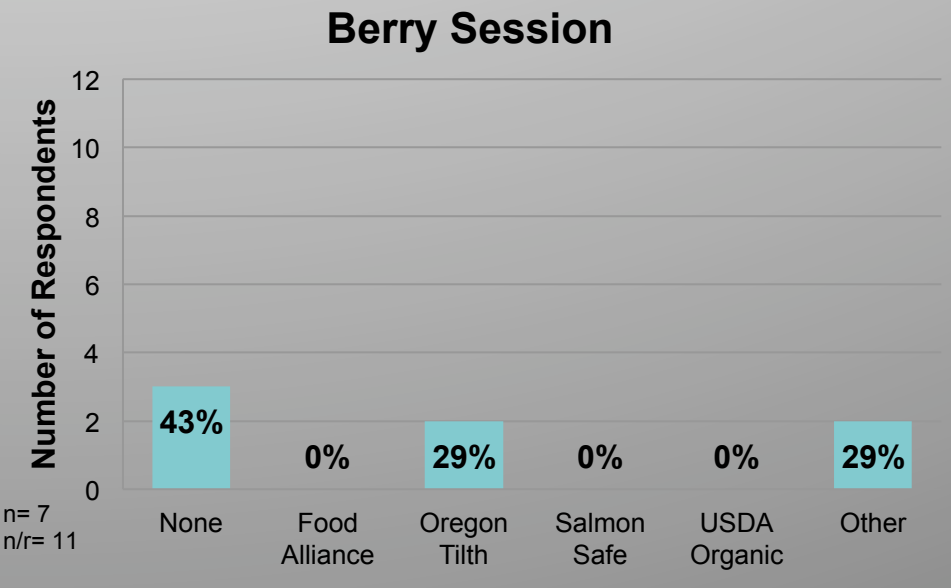


Primary Organic Certification System Used

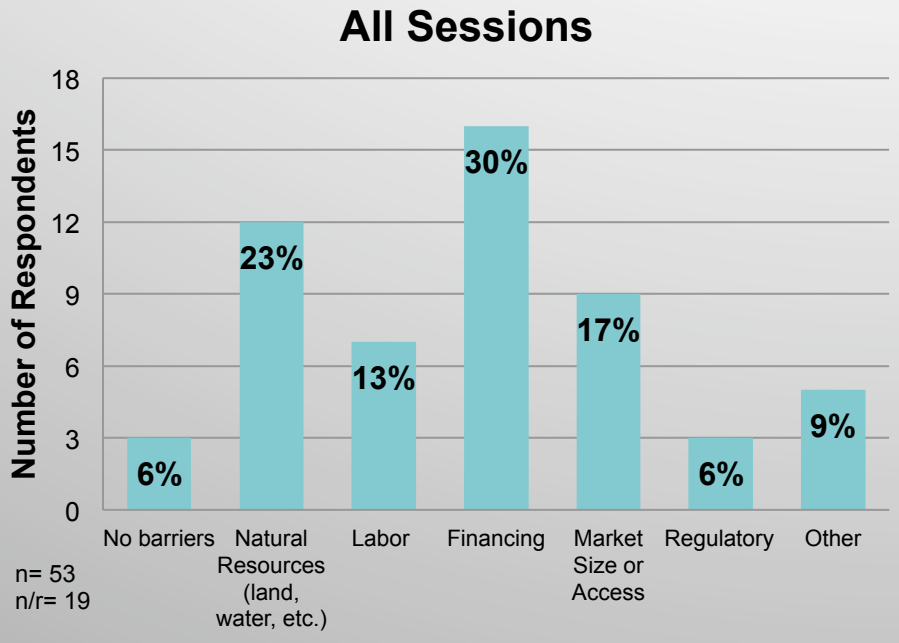


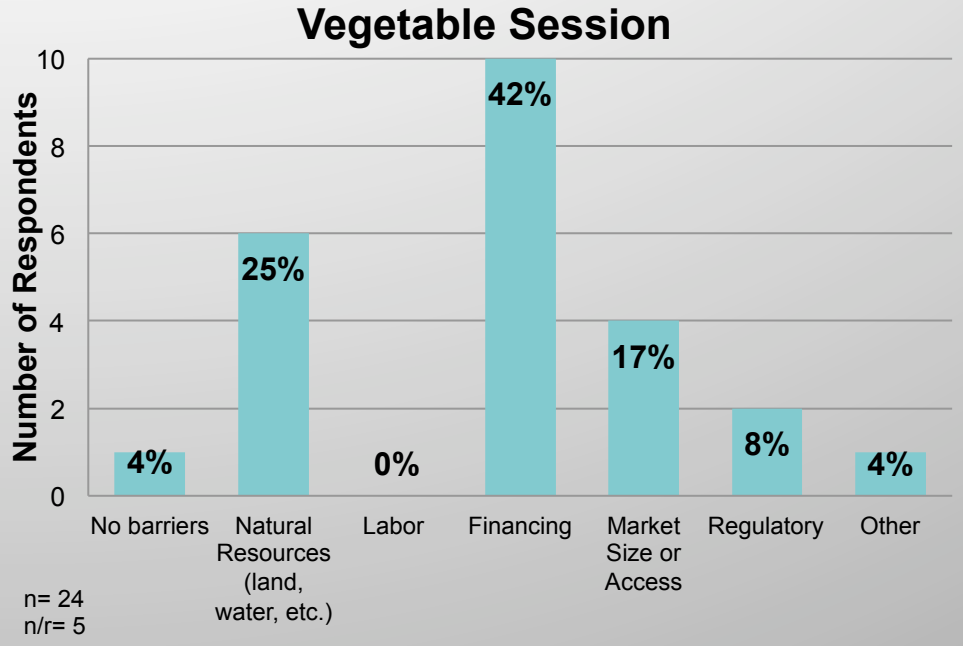


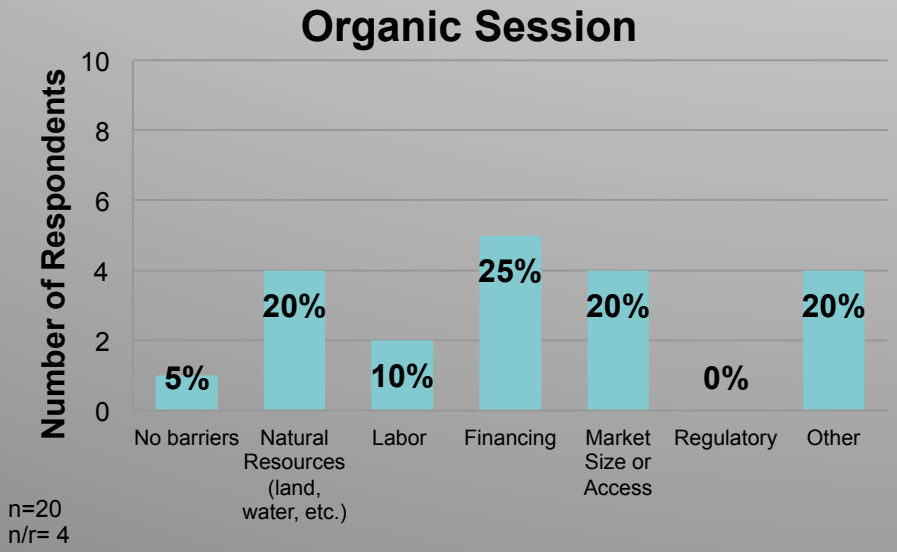


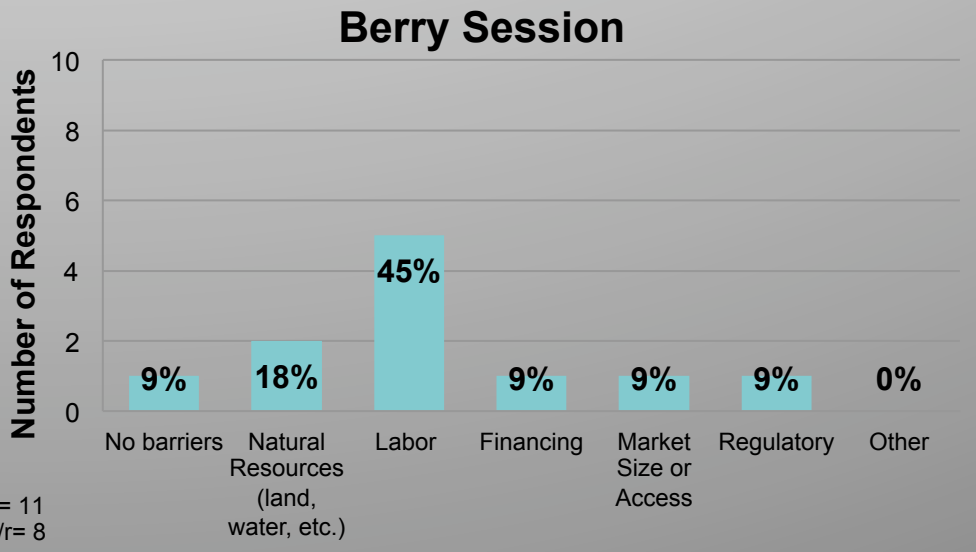


#1 Barrier to Producing or Expanding Current Markets



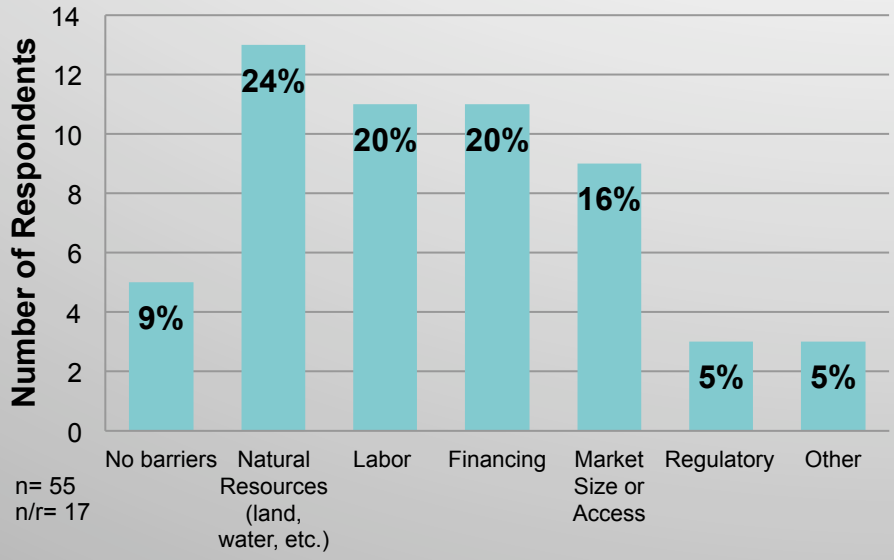






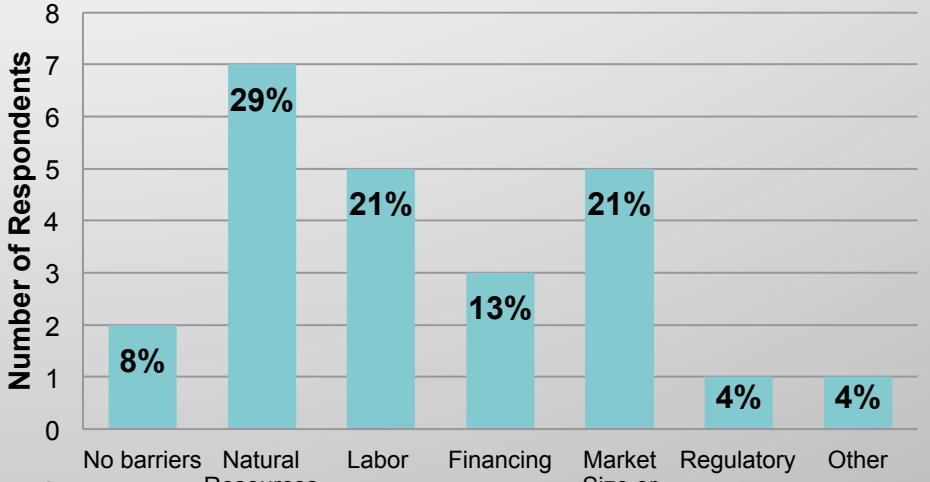
#2 Barrier to Producing or Expanding Current Products

All Sessions



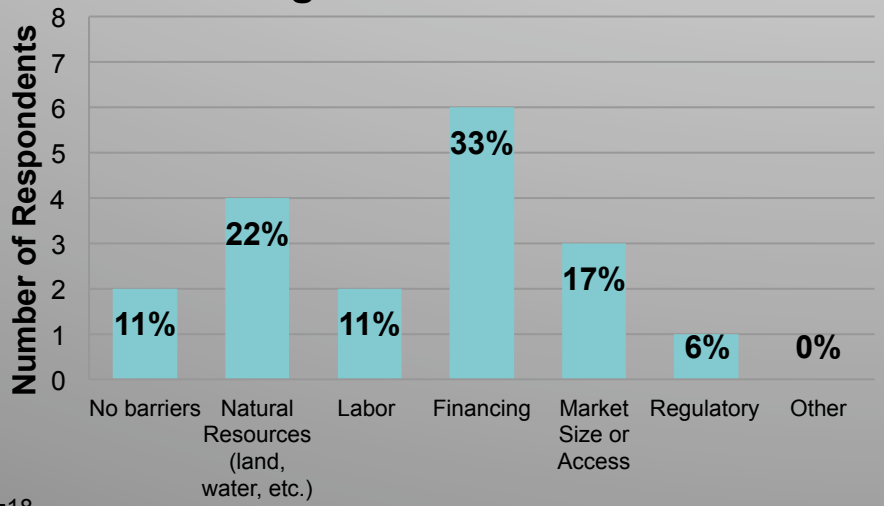
n= 55
n/r= 17

Vegetable Session



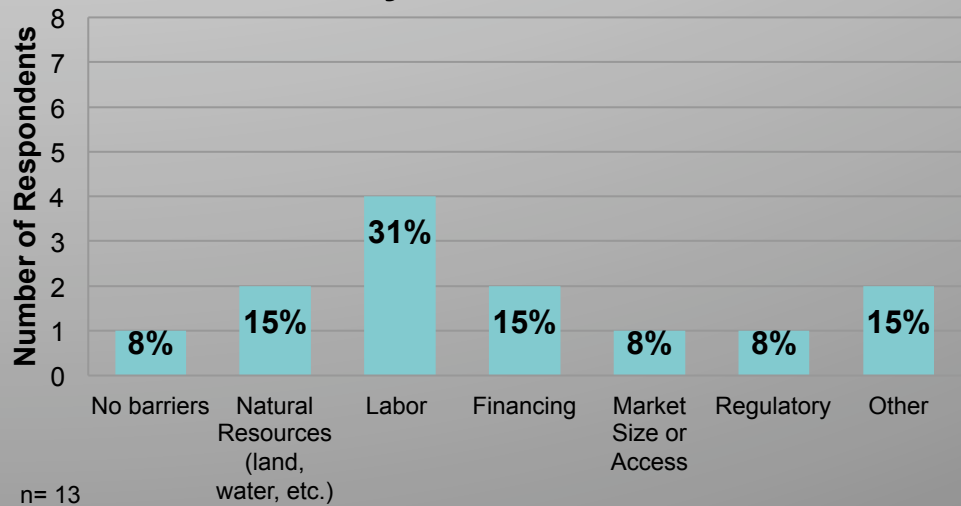
n= 24
n/r= 5

Organic Session



n=18
n/r= 6

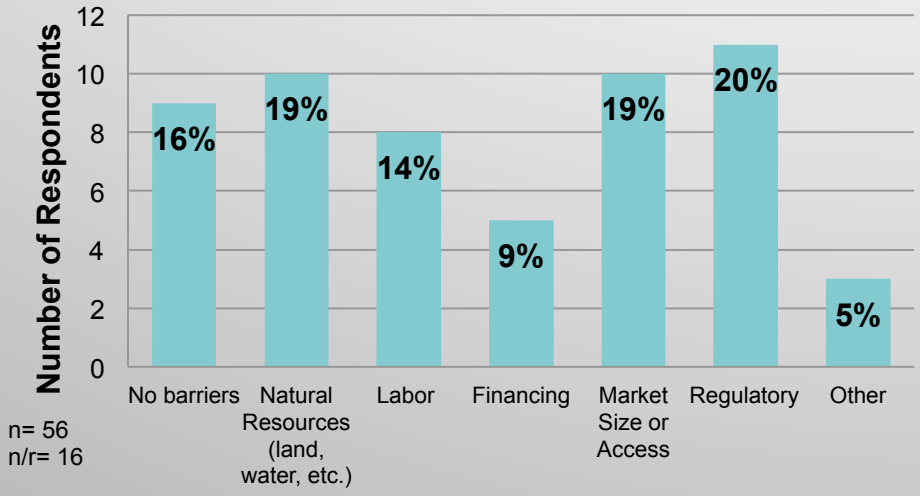
Berry Session



n= 13
n/r= 6

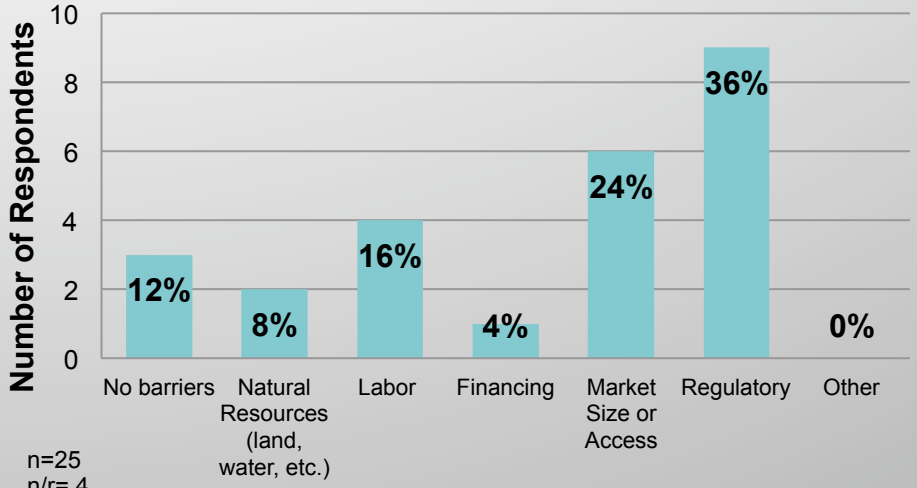
#3 Barrier to Producing or Expanding Current Production

All Sessions



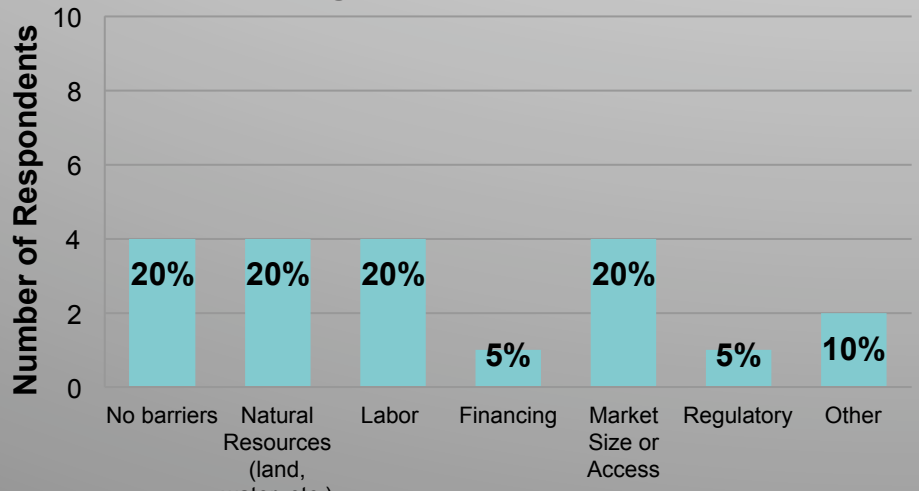
n= 56
n/r= 16

Vegetable Session



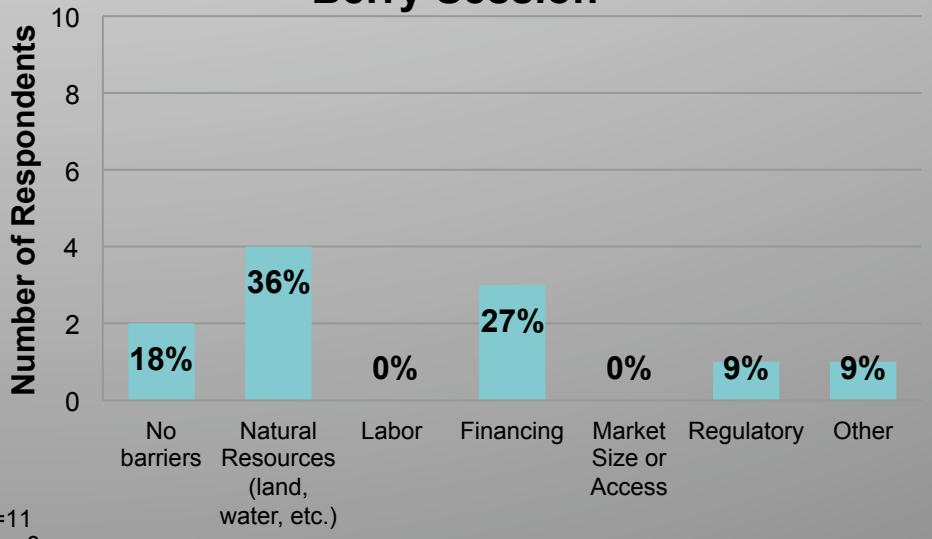
n=25
n/r= 4

Organic Session



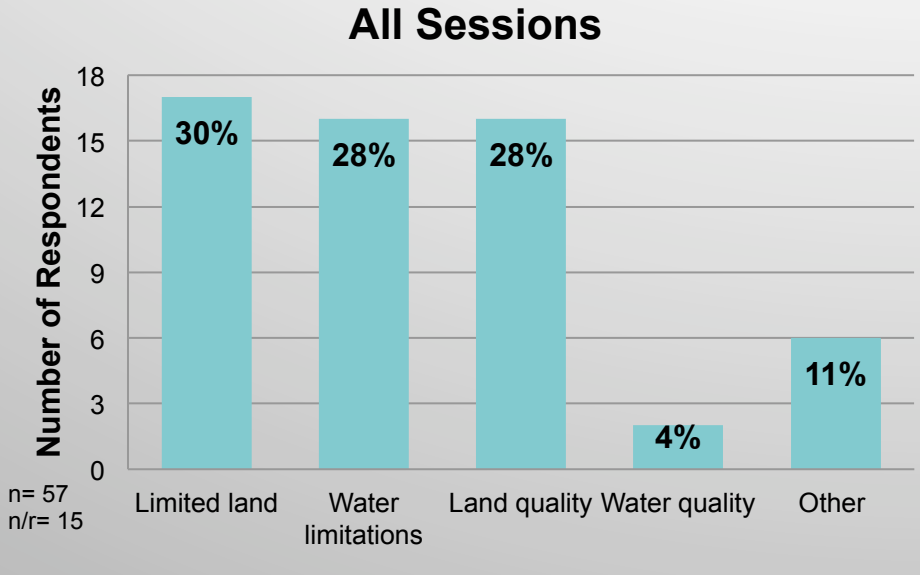
n= 20
n/r= 4

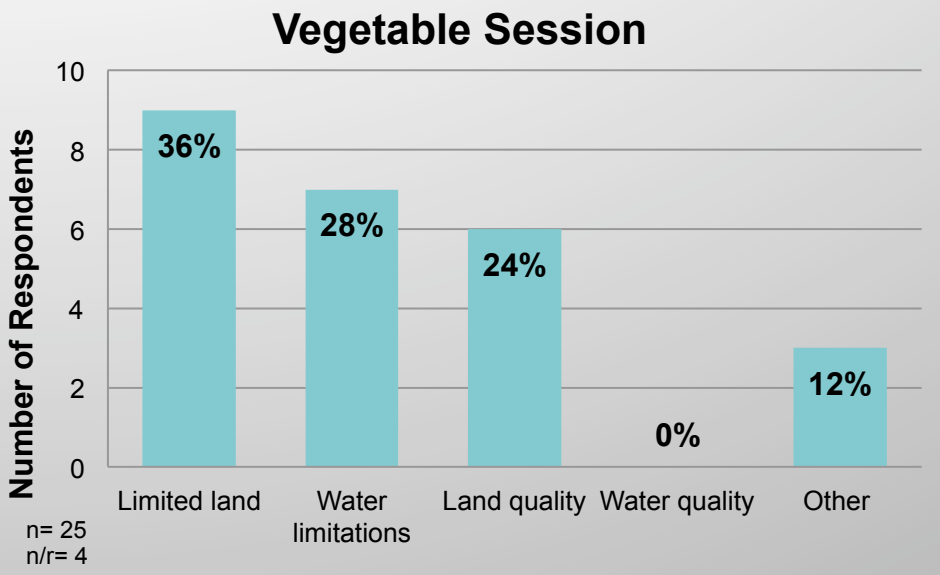
Berry Session

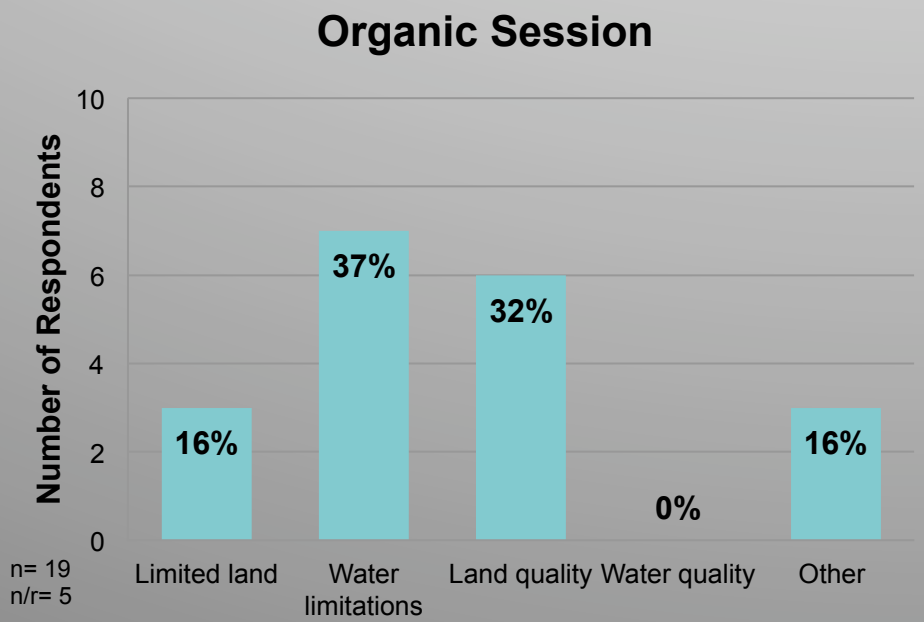


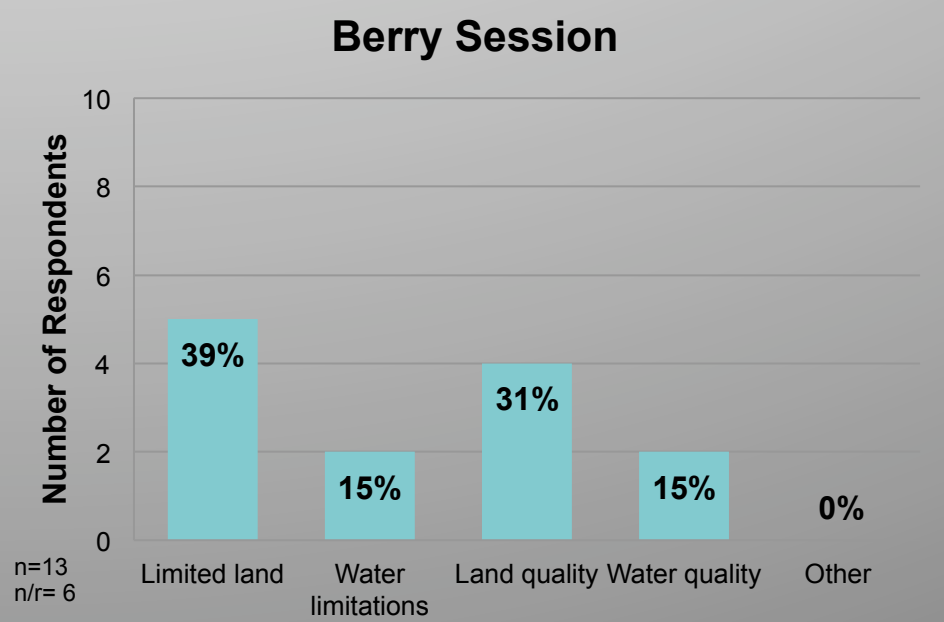
n=11
n/r= 8

#1 Natural Resource Barrier



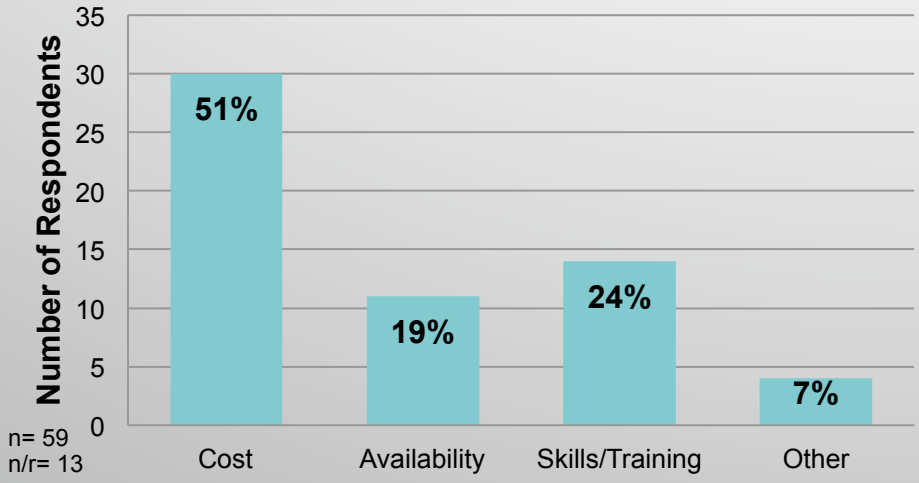






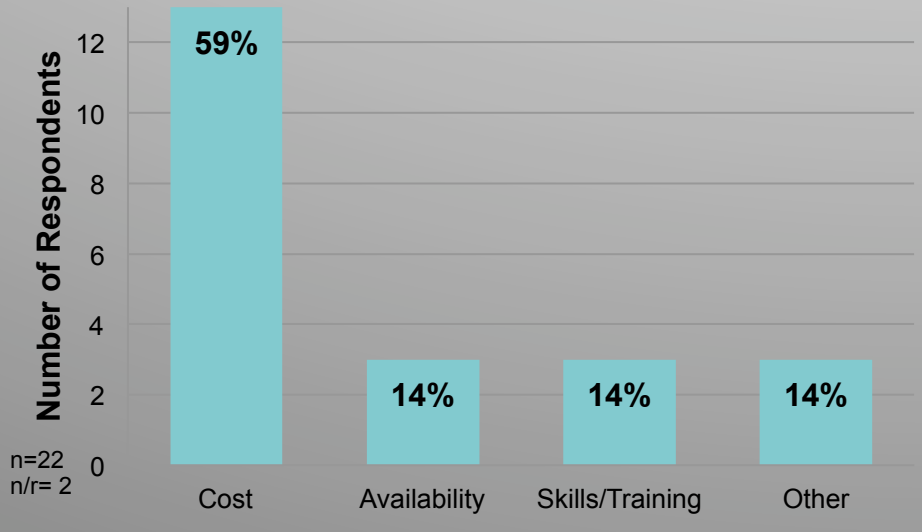
#1 Labor Barrier

All Sessions

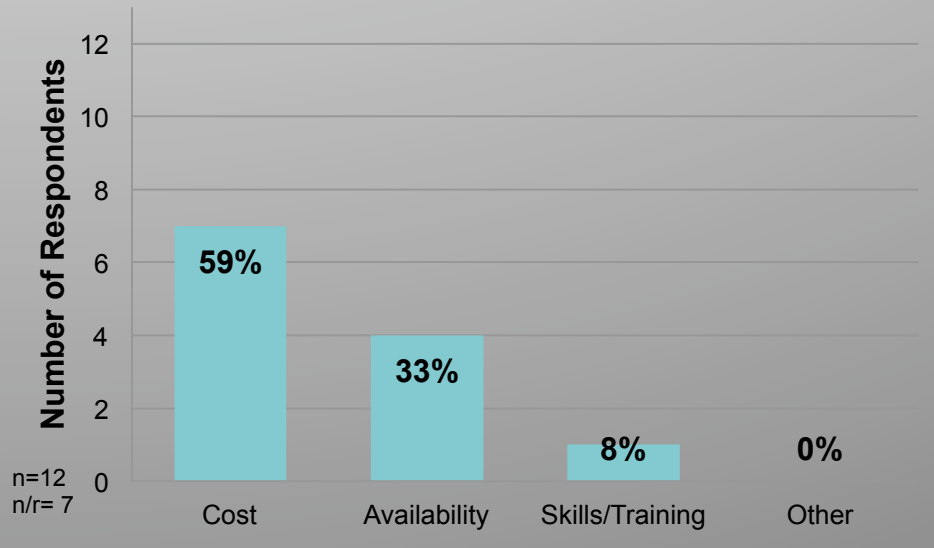


Vegetable Session

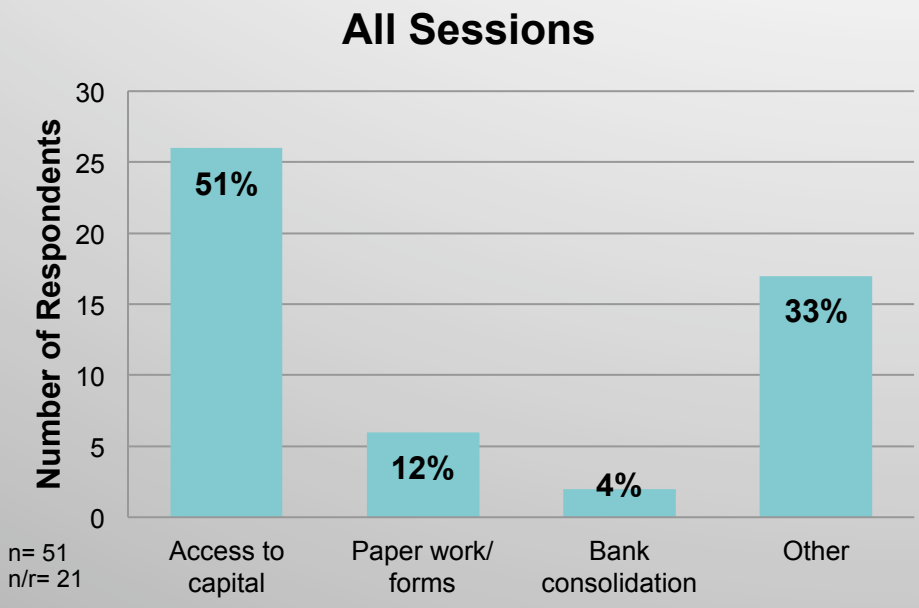
Organic Session

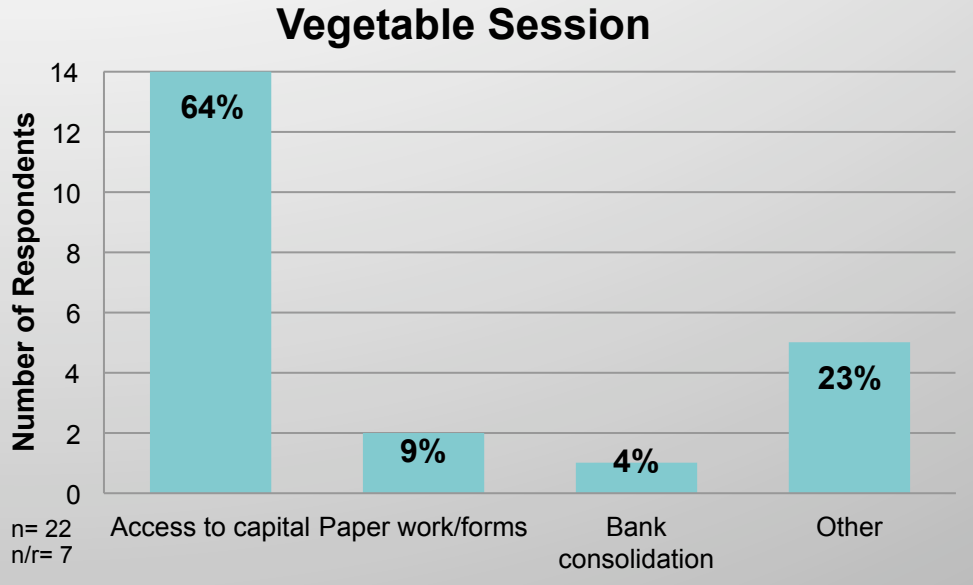


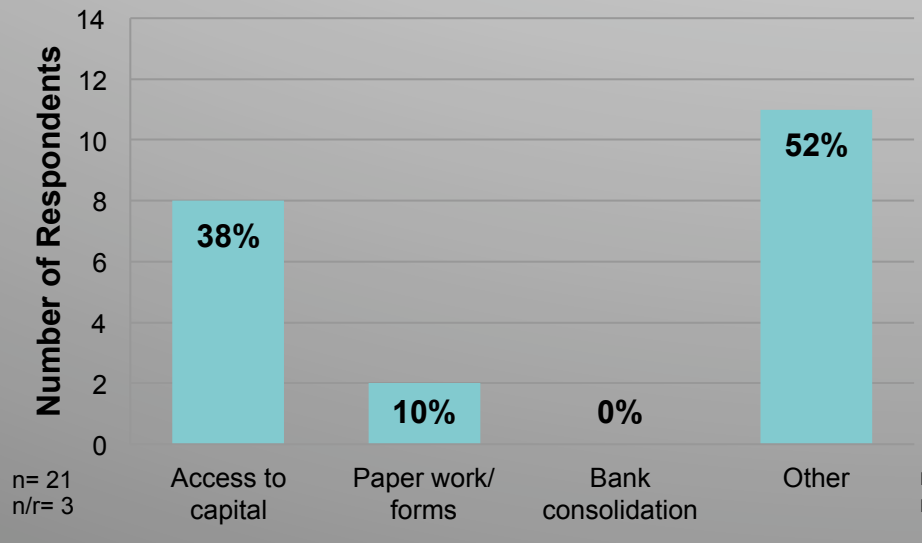
Berry Session

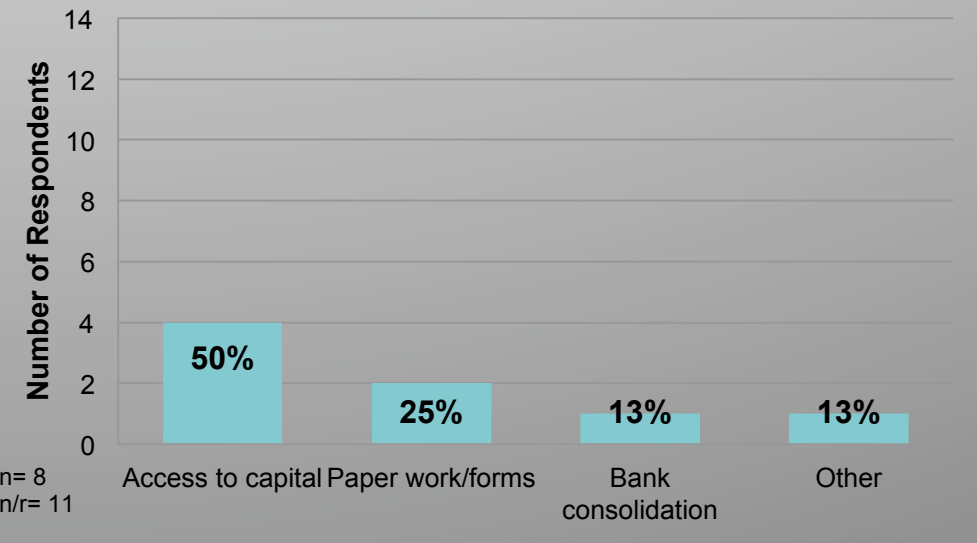


#1 Financial Barrier



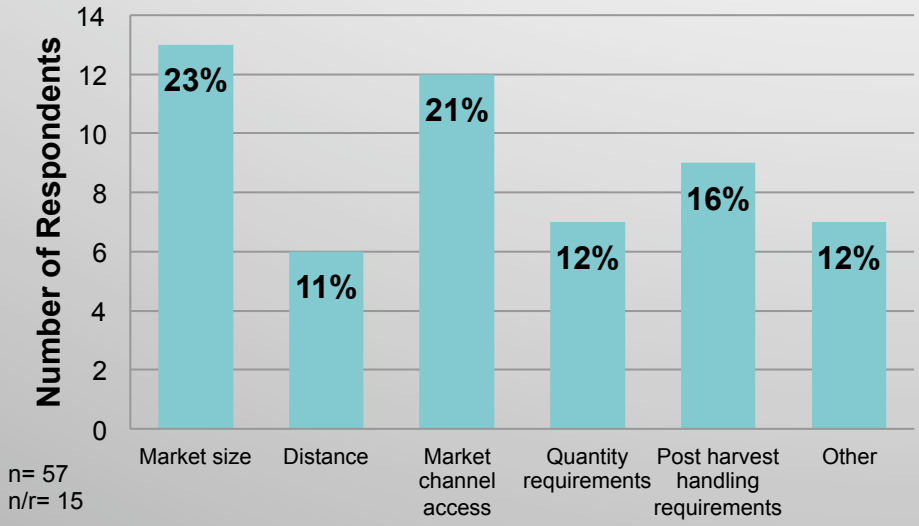






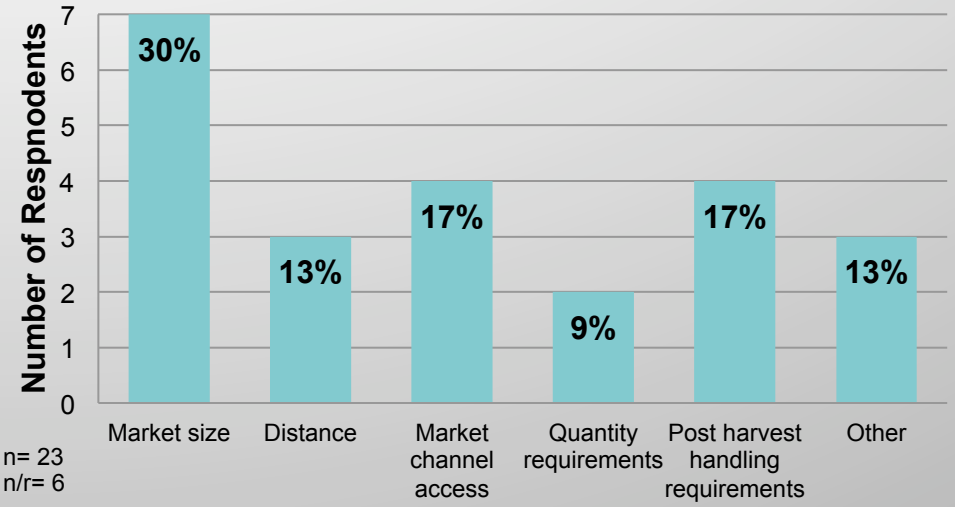
#1 Market-Related Barrier

All Sessions



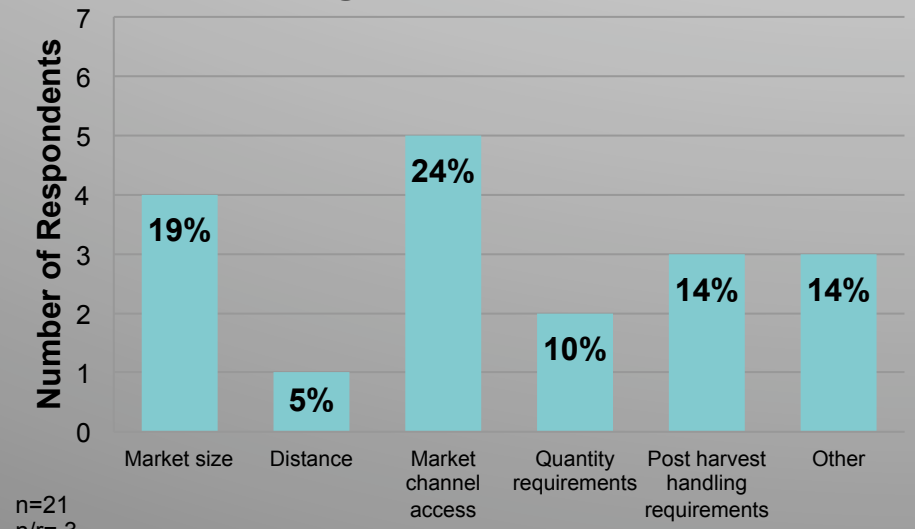
n= 57
n/r= 15

Vegetable Session



n= 23
n/r= 6

Organic Session



n=21
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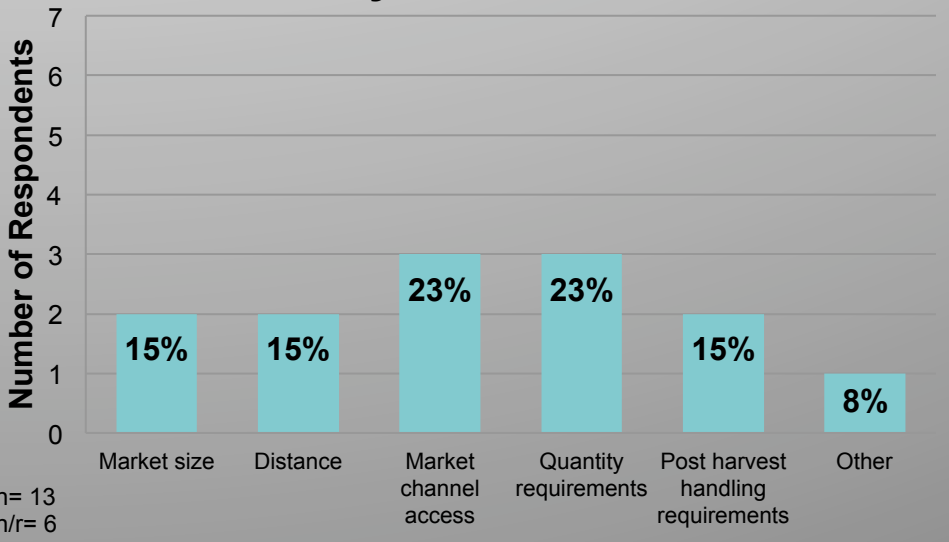
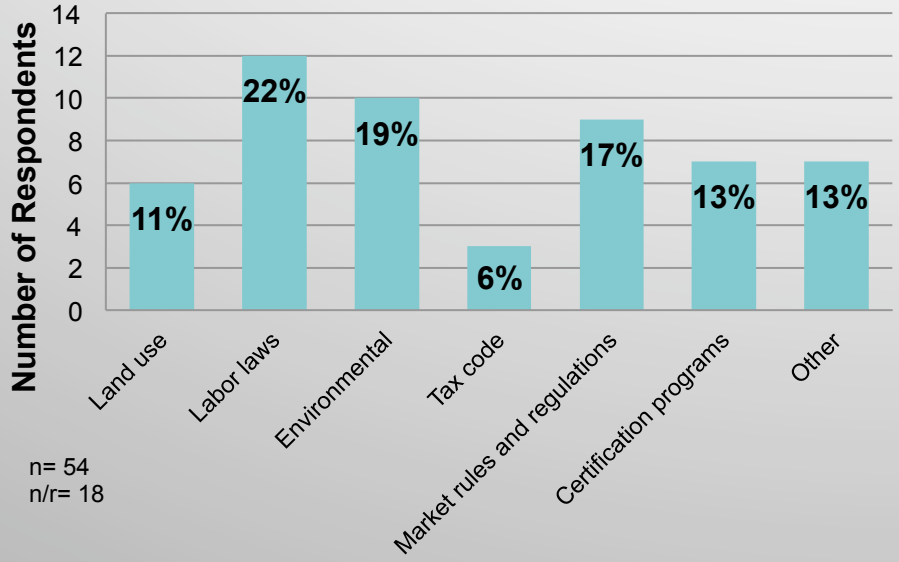
Berry Session



n= 13
n/r= 6

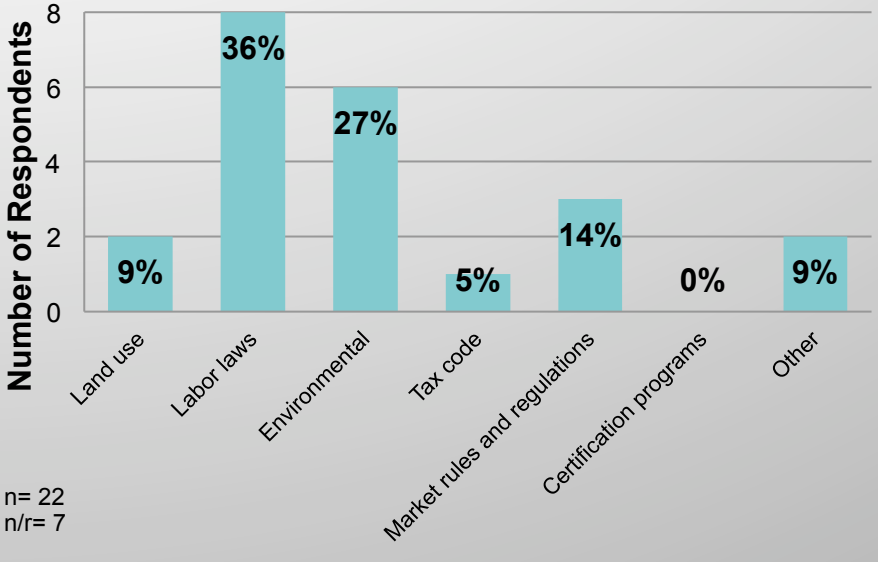
#1 Regulatory Barrier

All Sessions



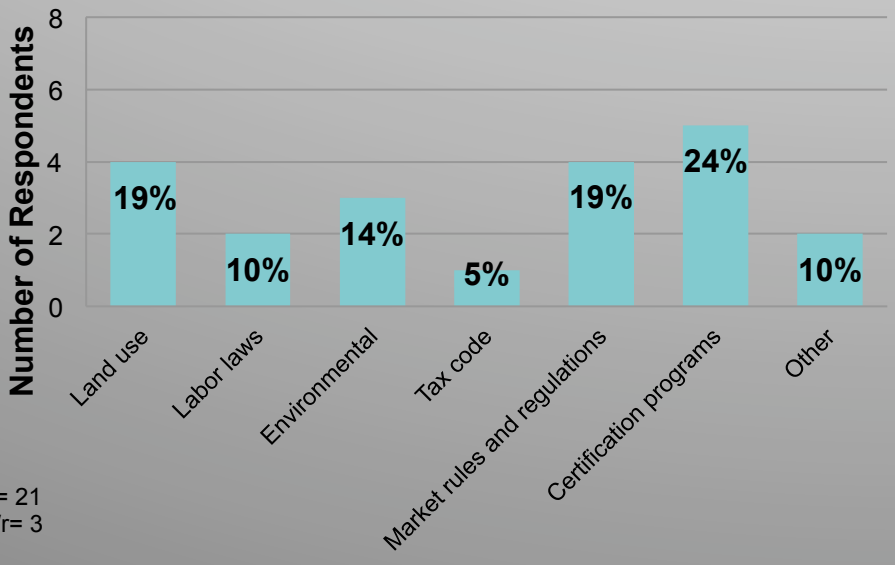
n= 54
n/r= 18

Vegetable Session



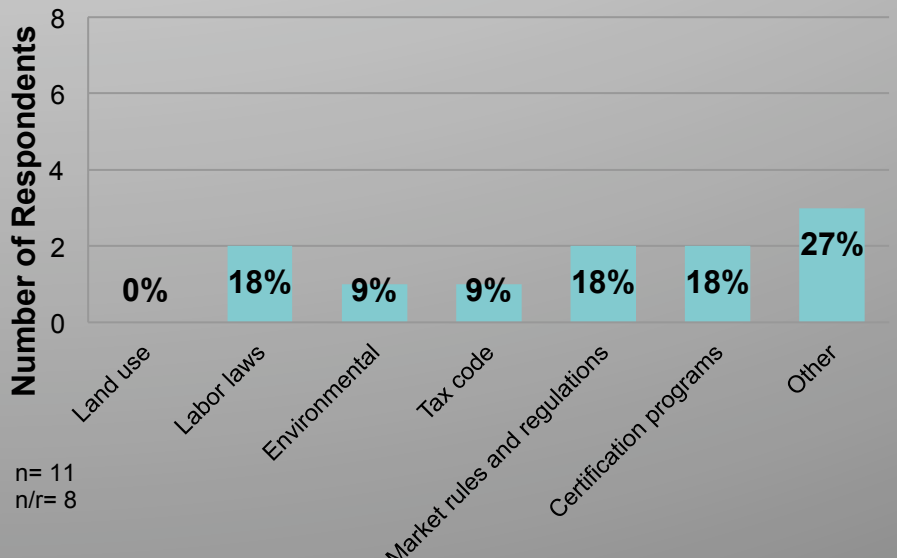
n= 22
n/r= 7

Organic Session



n= 21
n/r= 3

Berry Session



n= 11
n/r= 8

The next six figures include data on Oregon farms taken from the 2007 U.S. Census of Agriculture

Annual value of sales	Oregon	North Willamette	Clackamas	Washington	Multnomah	Columbia	Yamhill	Polk	Marion
Less than $1,000	11,763	3,908	1,242	487	122	245	622	440	750
$1,000 to $2,499	5,687	2,165	688	220	112	217	348	167	413
$2,500 to $4,999	4,651	1,616	540	210	66	128	266	126	280
$5,000 to $9,999	3,934	1,428	438	216	69	97	220	152	236
$10,000 to $19,999	2,807	884	314	118	38	59	124	70	161
$20,000 to $24,999	923	292	86	50	10	10	55	22	59
$25,000 to $39,999	1,592	503	141	86	24	16	93	42	101
$40,000 to $49,999	680	219	65	35	11	4	34	22	48
$50,000 to $99,999	1,838	595	153	97	27	11	123	43	141
$100,000 to $249,999	1,939	620	150	79	38	11	113	69	160
$250,000 to $499,999	1,077	305	55	59	18	4	38	44	87
More than $500,000	1,662	620	117	104	28	3	79	55	234
Total of Farms	38,553	13,155	3,989	1,761	563	805	2,115	1,252	2,670

Table A1. Number of farms by value of farm sales by state, North Willamette region, and by selected counties.

Annual value of sales	Oregon	N. Willamette Co.'s compared to State	N. Willamette Co.'s	Clackamas	Washington	Multnomah	Columbia	Yamhill	Polk	Marion
Less than $1,000	31%	33%	30%	31%	28%	22%	30%	29%	35%	28%
$1,000 to $2,499	15%	38%	16%	17%	12%	20%	27%	16%	13%	15%
$2,500 to $4,999	12%	35%	12%	14%	12%	12%	16%	13%	10%	10%
$5,000 to $9,999	10%	36%	11%	11%	12%	12%	12%	10%	12%	9%
$10,000 to $19,999	7%	31%	7%	8%	7%	7%	7%	6%	6%	6%
$20,000 to $24,999	2%	32%	2%	2%	3%	2%	1%	3%	2%	2%
$25,000 to $39,999	4%	32%	4%	4%	5%	4%	2%	4%	3%	4%
$40,000 to $49,999	2%	32%	2%	2%	2%	2%	0%	2%	2%	2%
$50,000 to $99,999	5%	32%	5%	4%	6%	5%	1%	6%	3%	5%
$100,000 to $249,999	5%	32%	5%	4%	4%	7%	1%	5%	6%	6%
$250,000 to $499,999	3%	28%	2%	1%	3%	3%	0%	2%	4%	3%
More than $500,000	4%	37%	5%	3%	6%	5%	0%	4%	4%	9%

Table A2. Percentage value of farms by value of farm sales by state, North Willamette region, and by selected counties.

	Farms	Land in farms (acres)	Average farm size (acres)	Median farm size (acres)
Oregon	38,553	16,399,647	425	29
Clackamas Co.	3,989	182,743	46	15
Columbia Co.	805	57,758	72	23
Marion Co.	2,670	307647	115	17
Multnomah Co.	563	28,506	51	15
Polk Co.	1,252	166,663	133	30
Washington Co.	1,761	127,984	73	16
Yamhill Co.	2,115	180,846	86	20

Table A3. Number of farms, total farm land, average and median farm size in Oregon and North Willamette counties.

	Total Farms	1 to 9	10 to 49	50 to 179	180 to 499	500 to 999	>1,000
Oregon	38,553	25%	37%	19%	9%	4%	7%
Clackamas Co.	3,989	38%	44%	14%	3%	1%	0%
Columbia Co.	805	24%	49%	20%	5%	1%	1%
Marion Co.	2,670	34%	39%	15%	7%	3%	2%
Multnomah Co.	563	39%	43%	13%	4%	2%	0%
Polk Co.	1,252	21%	41%	25%	6%	3%	3%
Washington Co.	1,761	34%	41%	17%	5%	2%	1%
Yamhill Co.	2,115	25%	48%	18%	6%	2%	1%

Table A4. Percent of total farms in Oregonand Northern Willamette valley counties by farm size in acres.

	Total Farms	Primary Occupation			Average age (yrs)	Male	Female
		Farming	Other	Some off-farm work			
Oregon	38,553	46.2%	53.8%	65.8%	58	78.6%	21.4%
Clackamas Co.	3,989	41.3%	58.7%	68.8%	57	77.1%	22.9%
Columbia Co.	805	38.5%	61.5%	68.3%	58	76.3%	23.7%
Marion Co.	2,670	46.4%	53.6%	65.1%	56	82.7%	17.3%
Multnomah Co.	563	45.1%	54.9%	61.3%	58	75.3%	24.7%
Polk Co.	1,252	43.5%	56.5%	66.1%	58	80.5%	19.5%
Washington Co.	1,761	45.0%	55.0%	67.1%	57	78.1%	21.9%
Yamhill Co.	2,115	38.7%	61.3%	70.1%	57	79.8%	20.2%

Table A5. Percent of total farms in Oregon and North Willamette valley counties by principle operator occupation, average age, and sex.

	Total Farms	Total farm land	Owners of all land		Rent some land		Rent all land	
			Farms	Acres	Farms	Acres	Farms	Acres
Oregon	38,553	16,399,647	78.2%	45.4%	16.0%	45.4%	5.8%	9.2%
Clackamas Co.	3,989	182,743	84.0%	50.2%	12.0%	45.5%	4.0%	4.2%
Columbia Co.	805	57,758	82.7%	64.3%	14.9%	34.5%	2.4%	1.3%
Marion Co.	2,670	307,647	74.4%	32.7%	18.0%	53.5%	7.6%	13.8%
Multnomah Co.	563	28,506	74.2%	48.5%	20.1%	48.2%	5.7%	3.3%
Polk Co.	1,252	166,663	80.1%	30.7%	14.4%	61.1%	5.5%	8.2%
Washington Co.	1,761	127,984	79.3%	38.5%	14.3%	50.3%	6.4%	11.2%
Yamhill Co.	2,115	180,846	83.5%	52.9%	12.5%	40.5%	4.0%	6.6%

Table A6. Land tenure by percent of total farms and acreage for Oregon and North Willamette valley counties.