

Economic Impact of Local Food Producers in Central Oregon

A survey based IMPLAN model incorporating the USDA AMS Toolkit guidelines

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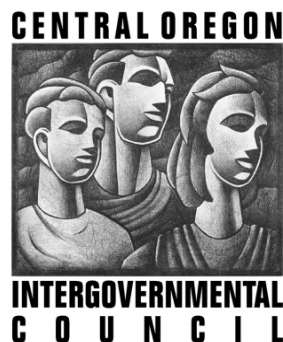
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Executive Summary

Local food connects communities with their farmers, ranchers and is a value that is important yet difficult to measure. This report attempts to estimate the current and potential economic impact of locally produced food in the tri-county region of Central Oregon.

This report presents findings from a total of 28 farmer and ranchers, or producers, surveyed and details out their earnings and expenditures. Our results show that producers created a total of 28 full and part-time jobs and generated \$1.5 million in sales, with \$248,000 in wages and salaries on their farm operations.

Our approach to determining these values was to use the input-output analysis using IMPLAN and utilizing the U.S. Department of Agriculture, Agriculture Marketing Services, *The Economics of Local Food System Toolkit*.

We found that in 2016, the majority of the 28 producers were farming on 10 acres or less of irrigated land, and began their farm operation in the last 2-7 years. Farmers grew 44 varieties of vegetables and other crops and 8 different animals. The majority of sales were beef cattle and vegetables with their primary marketing being farm direct to consumer and wholesale.

Unlike imported foods, which retain \$0.28 for every dollar spent, 76 percent of sales by local producers stayed in the local economy. This means that the money spent by producers on their supplies, such as seeds and gas, created an additional 11 jobs and \$1.1 million in additional sales throughout the region's economy.

Local food producers create more jobs on farms and in the rest of the economy as compared to commodity focused producers: 26 jobs for every \$1 million in sales compared to 12 jobs among commodity focused producers.

When determining the multiplier effect, which is the ripple effect of spending money in the economy, local farmers were determined to be 1.74, compared to 1.38 for non-local farmers. This means that local farmers support an additional \$0.36 of sales throughout the broader Central Oregon economy for every dollar of local produce sold. Comparatively, local ranchers have a sales multiplier of 1.79 as compared to 1.66 for non-local, and support an additional \$0.13 compared for every dollar of sales.

The study also estimated the potential growth in the economy by modeling three scenarios: 1) increasing current production; 2) establishing a food hub; and 3) shifting grocery store purchases of vegetables to locally grown from farmers.

Our findings show that by intensifying production levels to \$3.1 million, 63 farm and non-farm jobs would be created with an addition of \$1.33 million in wages and a total of \$5.4 million in sales. This would also require that farmers more intensely use their existing acreage and irrigation and increase the number of greenhouses.

By establishing a food hub and purchasing a minimum of \$610,000 of local food products, 9 new jobs, \$329,000 in wages and \$642,000 sales would occur in the overall economy.

Lastly, by shifting \$775,000 of consumer food purchases from commercial grocery stores to farmers in the region, we would gain 13 full and part-time jobs, and an additional \$263,000 of wages in the economy; 10 of those jobs would be on-farm with 52% of wages going to farmers.

Overall, the report demonstrates that local food producers have an important role in our economy, and that with minor shifts in overall production there could be additional jobs and revenue throughout the region.

Introduction

The agricultural sector continues to evolve as consumer preferences change and expand markets for a wider range of products. Consumers deliberately choose to support local businesses for economic, environmental, and social reasons. Growth in farm-to-table restaurants appeals to consumers who desire fresh foods. Eating local can also be seen as the broadening of the buy local movement. This increased interest from consumers, combined with a growing effort to promote and fund local food, has increased the interest in understanding the economic impact of these actions. However, identifying and measuring economic impact of the local food sector is challenging due to limited data and varying definitions of local.

In 2015, the U.S. Department of Agriculture (USDA) conducted the first national survey of local food marketing practices. Nationally, 167,000 farms sold \$8.7 billion of food through direct marketing practices (direct to consumer, retailer, institutions, and to intermediaries who sell locally branded products). In Oregon, 5,227 farms reported a total of \$114 million in local food sales (these values are not available at a regional level and only focus on the economic value of production and not the additional related economic activity).

While there are many different benefits provided by a local food system, there is little information on the economic impacts. How many jobs and incomes are directly or indirectly tied to local foods? What is the potential for growth? Interest in quantifying the economic activity associated with local food farmers has led the USDA and the Agricultural Marketing Service (AMS) to invest in a national Toolkit, [The Economics of Local Food Systems](#),ⁱ to more consistently measure the economic impact of the local food sector.

This study used the USDA Toolkit and conducted a survey of a sample of Central Oregon local food producers to create an economic model that estimated a portion of the economic activity that occurred or could occur through the expansion of the local food system in the region. Local food producers are defined as farmers and ranchers whose primary focus is to grow and sell food products through diverse market channels within the tri-county region of Crook, Deschutes, and Jefferson counties in Central Oregon. The survey collected 2014 data on farm operations including sales by local food product type and marketing channel, employment and wages, and detailed farm expenditures.

Key Definitions:

LOCAL FOOD PRODUCERS

farmers and ranchers who primarily focus on growing and selling food products through diverse market channels within the Central Oregon region.

ECONOMIC IMPACT *quantifying the total economic activity (jobs, labor income, and profits) that is associated with direct, indirect and induced impacts*

DIRECT IMPACT *is the economic activity that occurs on local food producers' farms and ranches*

INDIRECT IMPACT *is the economic activity of businesses that supply local food producers with inputs (what producers buy to produce their product)*

INDUCED IMPACT *is the household spending of wages and profits (where producer and input suppliers profit and wages are spent)*

ECONOMIC MULTIPLIER *is the ratio between all of the economic activity associated with an industry and dividing this total by the amount of activity that occurs within the*

This information provided new descriptive information about the producers in the region, and was used to create an economic impact estimate with the IMPLAN economic modeling software.

The estimated economic activity of the local food producers is reported in several ways: 1) full and part-time jobs, 2) wages and farm profits, 3) taxes and returns to investors and lenders as well as 4) total sales. Employment numbers are considered to be all full and part-time jobs that are either on local food farms or non-farm jobs supported by the purchases of the local food producers. Wages and farm profits (labor income) represent the wages, salaries, and proprietor income earned by individuals who are working within the local food sector or whose jobs are partially or fully supported by the purchases of local food producers. These dollars reflect money that goes directly to households in the region. Taxes and returns to investors and lenders (called additional value added in IMPLAN) includes the taxes, royalties, and profits to shareholders, property owners and banks generated by local food producers and their input purchases. Total sales reflect the economic activity created as farmers buy inputs, pay employees and owners, and sell local food products.

The total economic impact associated with the production of local food in the region includes three components: 1) farm and ranch sales and employment [direct effects]; 2) sales and employment supported by the purchasing of farm and ranch inputs from other businesses [indirect effects]; and 3) sales and employment supported by the household purchases made using the wages and profits earned by local food producers or input suppliers [induced effects]. The results from this project include a description of key characteristics of the farms and ranches that participated in the survey and the economic impact estimates of a subset of the region's local food producers.

Central Oregon Food and Agriculture

Central Oregon is a region nearly the size of New Hampshire and is located on a high desert plateau on the east-side of the Cascade Mountain range. Comprised of Crook, Deschutes, and Jefferson counties, the region has high altitudes, variable rainfall, and a four season climate with a short outdoor growing season. Similar to all Oregon farms, a majority of farms in this region are small in size, have low total sales, and market only a small portion of their products through direct channels.

In 2012, the USDA Agricultural Census counted 2,308 farms in the region. Of the total farms, 1,484 were cultivating on 10-49 acres (41%) or 1-9 acres (25%). Eighty-two percent of these farms earned less than \$25,000 in annual gross sales, and 70% of all farms earned less than \$10,000. Sixteen percent of farms in the region engage in direct marketing compared to 19% statewide, but direct marketing farms in the region earned roughly one-half the total sales of the state average in 2012. Focusing on a group of crops that might indicate the number of producers who could potentially contribute to local food production; we examined the number of farms growing vegetables, fruits and nuts and berries. The agricultural census combines the number of farms producing vegetables, melons and potatoes with farms producing vegetable, melon and potato bedding plants and seeds. The region has had a historical presence in vegetable seed production and so growth in this sector could represent either seeds or vegetables. Central Oregon farms are increasingly producing vegetable, melon and potato crops and seeds (56% increase) and fruits and nuts (growing from 2 farms to 14) and starting to

produce berries (growing from 0 to 16 farms) over the past 10 years (2002-2012). The region's most valuable agricultural products based on sales data in the 2012 Census were cattle and calves and hay production. With this brief overview, we now focus on a subset of the region's local food producers.

Methodology

This study estimated economic impacts by collecting data directly from a portion of the region's producers who primarily but not exclusively grow and market products within the Central Oregon region, utilizing a customized IMPLAN economic model based on survey averages. These two methods are briefly described below. The survey questions can be found in the Appendix.

Local Food Producer Survey

In 2016, a list of 83 Central Oregon producers was created through a collaborative effort between two non-profit organizations, High Desert Food and Farm Alliance (HDIFFA) and Central Oregon Locavore, and a governmental organization, Central Oregon Intergovernmental Council (COIC), which work intimately with a network of farmers and ranchers in the region. Initial contact was made through email correspondence from COIC introducing the project purpose and the survey. HDFFA then made secondary contact via phone calls to schedule in-person interviews with farmers. Over the course of four months (April through July 2016), third and fourth contact attempts were made by both phone and email. If a producer remained unresponsive, a fifth, final contact attempt was made before removing the farm operation from the survey participation pool. Initially, farms were contacted based on a randomized draw, but ultimately HDFFA contacted every farm business. In order to accommodate producers' busy schedules, participants could take the survey one of three ways: 1) in-person, on farm interview conducted by HDFFA; 2) phone interview conducted by HDFFA, or 3) self-completion online. The majority of survey respondents completed the survey in person.

Surveys from 38 farming and ranching businesses were obtained, yielding a response rate of 46%. Survey data was not obtained from 45 of the 83 identified producers for the following reasons: 7 businesses agreed to participate but did not complete the survey; 10 businesses were excluded because they didn't file a Schedule F and the survey was not applicable to their operation; 10 businesses didn't wish to divulge any financial information or participate in the survey; 12 businesses were unresponsive or didn't share a reason why they opted to not participate; and 6 businesses were no longer in operation. It should be noted that collecting data on local food producers is challenging. Some business owners do not want to share financial information about their operations, and there is not enough available county or regional data readily available to approximate their operations.

The USDA 2012 Census estimated Central Oregon contained just over one third of the state's farm direct marketers (372) and the average sales were \$3,319 per farm for a total of \$1.2 million in regional sales (see Table 1). Unlike the Census data, our survey collected partial information from a total of 38 farms who reported \$1.7 million in total sales, an average of \$46,838 on their 2014 Schedule F tax forms.

Acknowledging that there are differences in definitions of sales and years between these two data sources, these two data points offer similar sales values but vastly different farm counts. One potential explanation is that there is a small set of farms actively engaging in direct marketing practices as their primary business activity, and that our survey of 38 producers included most of these active farms. These 38 farms represent approximately 10% of the producers who reported direct sales in the Census of Ag which suggests that most producers in the region who use direct marketing are either farms with very low total sales or farms that primarily rely on other marketing channels.

Table 1: Comparing Census of Agriculture Direct Marketing Sales with Sales from a Sample of Local Food Producers

	2012 Census of Ag			Local Food Producer Survey 2014 Schedule F		
	# of Direct Marketing Farms	Direct Marketing Total Sales	Avg. Direct Marketing Sales per Farm	# of Local Food Farms	Local Food Farm Total Sales	Avg. Sales/ Farm
Crook	94	\$268,000	\$2,851	9	\$234,700	\$26,078
Deschutes	246	\$908,000	\$3,691	20	\$928,700	\$46,435
Jefferson	32	\$59,000	\$1,844	9	\$616,431	\$68,492
Region Total	372	\$1,235,000	\$3,320	38	\$1,779,831	\$46,838
State Total	6,680	\$44,177	\$6,613	NA		

Customizing an IMPLAN Model

The estimates of the economic impact in this report were constructed using the input-output economic model IMPLAN version three software and 2013 county-level data packages. A number of steps were used to customize the default data for the tri-county region with the survey responses. First, not all 38 farms chose to answer every question in the survey: 10 of the 38 farms were excluded from the calculation of economic impact: three farms chose not to share any sales or expense data; five farms elected not to share information about their input purchases; and two farms had more than 50% of their sales from off-farm sources and did not differentiate their expenditures between on-farm and off-farm inputs. The remaining 28 qualifying farms were classified as either primarily crop production or primarily animal production based on their reported sales totals by product.

Producers reported expenditures as shares of their total expenditure across 26 different categories taken directly from their 2014 Schedule F tax form. Within each category, they also indicated what percent of their purchases were made outside the tri-county region; any purchases made outside the region did not generate additional economic impact in the region and are not part of this analysis. These expenditures were then summed to create two averages that represent crop only or animal only producers. The local expenditure categories from the Schedule F were then matched to IMPLAN commodities and used to create a “production function” for both the primarily crop and

primarily animal sectors which details the input purchases from other businesses within the region. The rest of the industries were modeled using IMPLAN default data and the model was not aggregated. All dollar values are rounded to the nearest one-thousand and reported as 2014 current dollars.

The IMPLAN software makes a number of assumptions about the economy in order to create the input-output model. Five major assumptions are described here:

- 1) IMPLAN uses fixed production functions for all businesses within a sector. This means each business produces a homogeneous good or product with the same ratios of inputs.
- 2) IMPLAN assumes that there is homogeneity among goods and services within a sector, therefore all goods and services produced by every business in that sector has the same quality, durability, and value.
- 3) All businesses are operating under constant returns to scale, therefore the total amount of inputs required for each unit of output, and the price of inputs, does not change based on the size of the business or the total output.
- 4) The homogeneity of goods and services assumption does not allow cross hauling. If a product is produced and used in a region, it is assumed that purchasers of the product will always buy local first before importing.
- 5) Similarly, broad sector categories that contain multiple products may imply that a product is available locally when it is not. Sector categories that group together multiple commodities use national averages which might be more or less reflective of the commodity mix in a particular region. Despite these modeling limitations, an input-output model is widely accepted and using IMPLAN has become the standard method for producing these types of economic estimates.

Descriptive Survey Results

The survey collected data from producers to answer three primary questions:

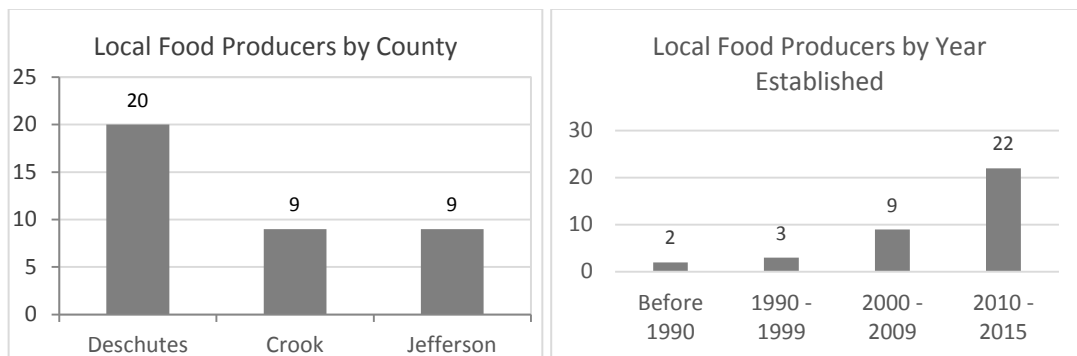
- 1) What types of farm operations are engaging in local food production?
- 2) What inputs did local producers buy and from where?
- 3) How is this system changing and likely to change in the future?

The economic impact reported here represents a portion of the total economic activity among local food producers. Descriptive results for each of these questions are discussed below and are based upon the total number of farms that answered each question. Responses that included complete sales and expenditure data were used in the IMPLAN model. There was no attempt to extrapolate beyond this set of producers to try to capture the economic impact of all local food producers in the region.

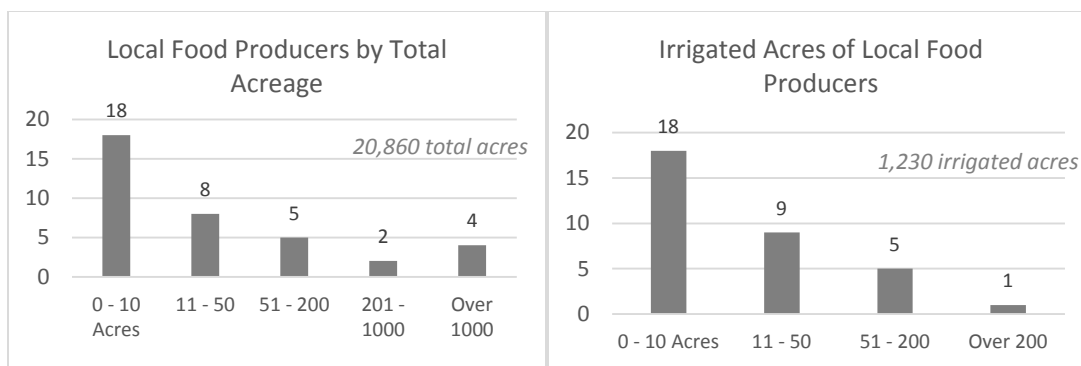
Types of Farm Operations Engaging in Local Food Production

In an effort to describe their operations, we asked local food producers for farm details, aside from their economic impact. A total of 38 producers provided partial information about the age, size, product mix, and market practices of their local food operation (20 operations in Deschutes County and nine each in Crook and Jefferson counties).

Our findings show that producers have relatively new operations; 61% (22) were established in 2010 or later (Figures 1 and 2). Operations vary in size; nearly half are 10 acres or less yet four farms had 1,000 acres or more devoted to beef cattle production (see Figure 3). The majority of farms have irrigation on a small number of irrigated acres, less than 10. We found that producers are actively testing product mixes, adjusting the volumes of product, and accessing new markets. Among the 38 farms surveyed, local food producers are operating on a combined total of 20,860 acres of which 1,203 acres are irrigated (Figure 4). (The region has a total of 106,213 irrigated acres in the 2012 Agricultural Census.) Within the producers surveyed, a few large cattle operations are outliers containing large portions of the total and rented farm land.



Figures 1 and 2: Local food producers participating in the survey by county and year established



Figures 3 and 4: Local food producers by total size of operation and irrigated acres

Local Food Product Diversity and Sales by Product Type

Local food producers are growing a diverse set of products. A total of 32 producers provided detailed descriptions of their 2016 production with a total of 44 types of crops and 8 types of livestock (see Table 2). Tomatoes, carrots, beets, and peppers are the most commonly planted crops (15 farms or more) while 14 operations raise cattle, and 10 raise swine. Producers also provided 2014 sales by major commodity groups; 42% of all sales came from beef cattle, 26% from vegetable production, 21% from fruit production, and the remaining 11% from other animal production.

Table 2: Crops and livestock produced in 2016 by Local Food Farms (N=32 farms)

Farms	Item	Farms	Item	Farms	Item
2	Artichoke	3	Fruit trees	6	Rhubarb
4	Asparagus	10	Garlic	5	Rutabaga
12	Beans	1	Grains	5	Shallot
15	Beets	13	Herbs	10	Spinach
6	Berry plants	3	Hops	14	Squash (summer)
9	Bok Choy	8	Leek	10	Squash (winter)
13	Broccoli	10	Lettuce - Head	11	Tomatillo
3	Brussels Sprout	13	Lettuce - Mixed Greens	16	Tomato
11	Cabbage	6	Melon	7	Turnip
16	Carrot	1	Nuts	14	Cattle
9	Cauliflower	11	Onion	10	Swine
4	Celeriac	6	Parsnip	6	Poultry
8	Celery	13	Peas	2	Poultry- eggs
11	Collards/ Kale	15	Peppers	4	Lamb
5	Corn	13	Potato	4	Goat
14	Cucumber	13	Pumpkin	2	Dairy (All)
11	Eggplant	11	Radish	1	Ostrich

Marketing Practices

Marketing practices for local food producers have expanded with population growth and consumer demand through a range of distribution channels and location; very few producers surveyed are marketing outside of Central Oregon. There were distinct differences between crop versus animal producers as to where they marketed their products. Crop producers cited farmers markets (30%) as the main sales channel followed by CSAs (16%) and restaurants (15%). In contrast, animal producers primarily utilized farm stands (42%), wholesale (29%), and farmers markets (13%). The importance of a regional wholesaler, Central Oregon Locavore, which sells farm-direct by consignment, was listed specifically by seven producers, and is separated from other wholesale sales in Table 3.

Table 3: Describe where the farm business sold its products in 2014

	All farms	Primarily Crop Producers	Primarily Animal Producers
Direct to Consumer Channels			
Farm Stands	27%	10%	42%
Farmers Market	21	30	13
CSAs	8	16	2
Wholesale and Institutional Channels			
Other Wholesale	12	6	16
Central Oregon Locavore	10	9	13
Restaurants	7	15	2
Grocery Stores	4	6	2
Schools/Hospitals	1	3	0
Other Marketing Channels			
Auction	3	0	7
Other Farms	3	0	1
Other channels	5	7	3
Total Sales	100%	100%	100%

Inputs Bought by Local Producers

Local food producers purchase a high proportion of their inputs within the tri-county region. Primarily crop producers report purchasing 96.2% of all inputs locally, while primarily animal producers purchased a reported 98.6% of all inputs within the region. Purchases made outside of the region are considered “leakages” and these dollars do not produce a local economic impact. Because local food producers’ purchase more inputs from within the region, they support additional economic activity for regional businesses. For more information see the Economic Impact section below.

Current and Future Farm Operation Changes

The survey asked local food producers a series of qualitative questions:

1. How has your operation changed in the past 2 years?
2. What plans do you have to change your operation in the next 2 years?
3. What are your priorities for external support?

Overall, the majority of producers are actively changing their operations in response to expanding market opportunities and demand. Accessing additional markets and assistance marketing their products were respondents' main priorities.

Changes to Operations

A majority of respondents indicated they have implemented changes to their farm operations in the previous two years (65% recalling their farm operation practices in 2012 and 2013) and more (74%) were planning to make changes in the next two years (2016-2017). The most common response for change in both time periods was to increase production, followed by change product mix. Less than a quarter of respondents who were making changes reported adopting new methods or building additional infrastructure. Two respondents noted that they planned to grow fewer types of crops in order to improve efficiency. In the "other" category, one farm reported focusing on vertical integration in the past; while two operations are focused on either renting land or closing their businesses (see Figure 5).

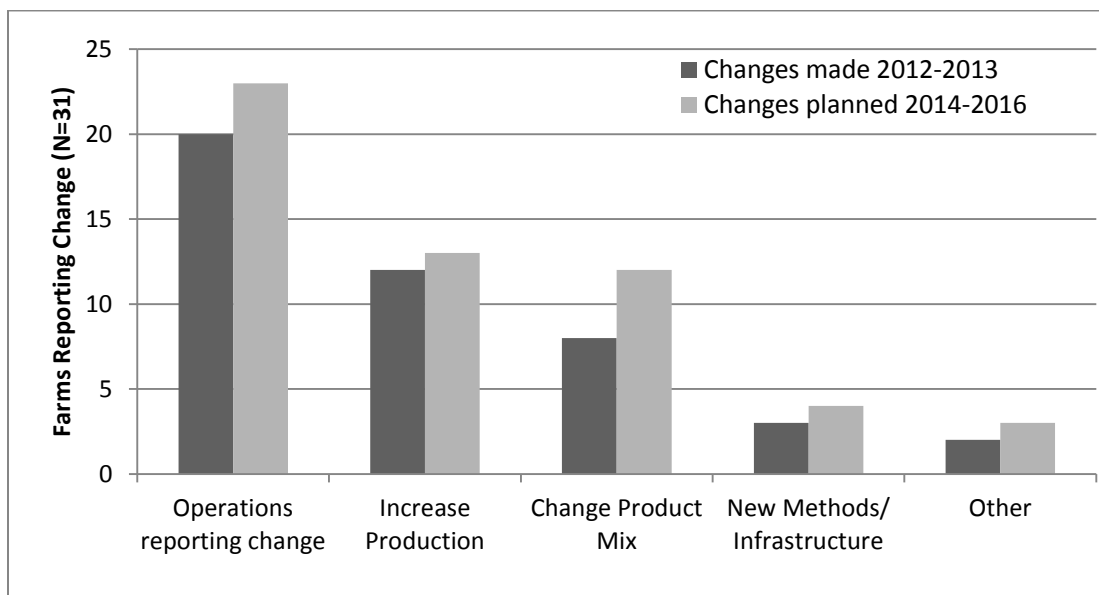


Figure 5: Operation changes made in the past 2 years or planned for the next 2 years

Changes in Marketing Channels

Changes in market opportunities experienced by respondents reflect growth in current distribution channels (see Figure 6). When asked what markets are growing and where demand is growing, 29 producers reported a general growth in the local food market, eight stated growth in multiple sales channels, and only two felt demand was unchanged. Similar to the current market channels, farmers market and farm stands were found to have the most sales growth (7 respondents), followed by restaurants (4), wholesale (4), CSAs (3), and Central Oregon Locavore (3). The primary geographic location for this growth was overwhelmingly the Central Oregon market. Of the producers reporting growth outside the region, two reported growth in Portland and one cited online sales.

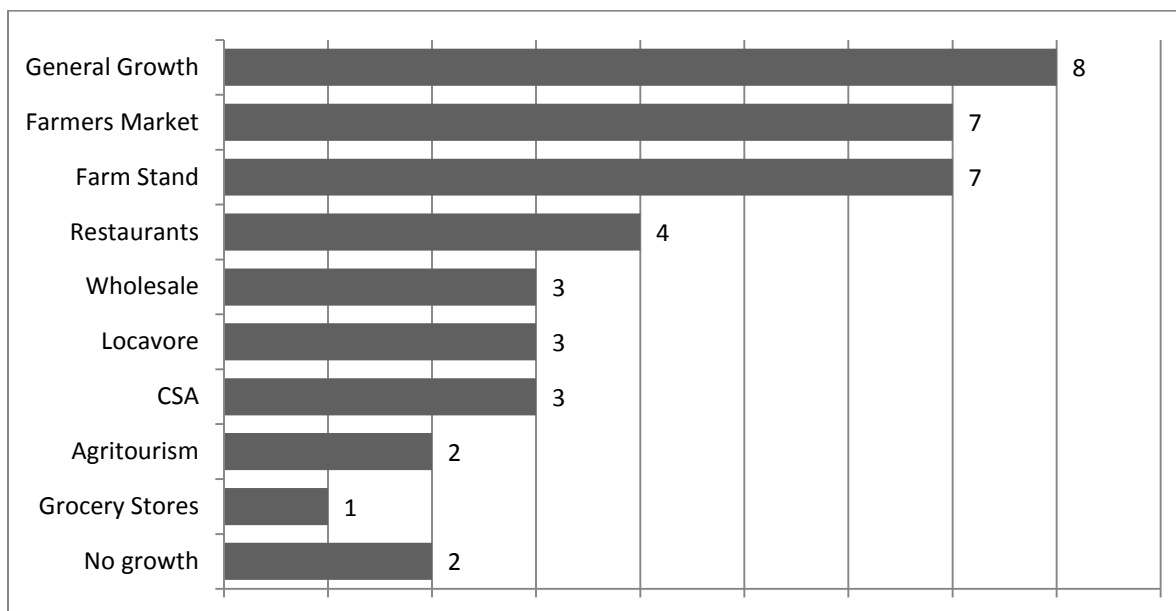


Figure 6: In What Markets is Demand Growing? (n=32 farms)

Producer Priorities for External Support

To further understand how to support local farm producers' adaptation to new markets, producers were asked two final survey questions. First, they were asked to indicate their interest in increasing wholesale marketing. While previous work by COIC and HFFFA indicate wholesale diversification is limited in the region because of lack of infrastructure, a high number of producers stated that they are interested: 12 currently sell and 8 additional farms are interested. Lower price points and the greater product volume required were the chief concerns for those stating they might be interested and the 4 farms that are not interested.

Secondly, respondents were asked to identify priorities for COIC and HFFFA support in an area that they are unable to accomplish on their own. Figure 7 groups the responses into six categories. Assistance with marketing farm products and accessing additional markets was the most common priority (11 producers); followed by 8 responses that covered farmer education, networking and land access (6 respondents mentioned organic certification, wholesale pricing, beginning farmer resources,

or farm finances, networking and land access). Smaller numbers of producers requested assistance with distribution (4), educating consumers (3), a meat packing facility (2), more grant dollars and more labor housing were each mentioned once.

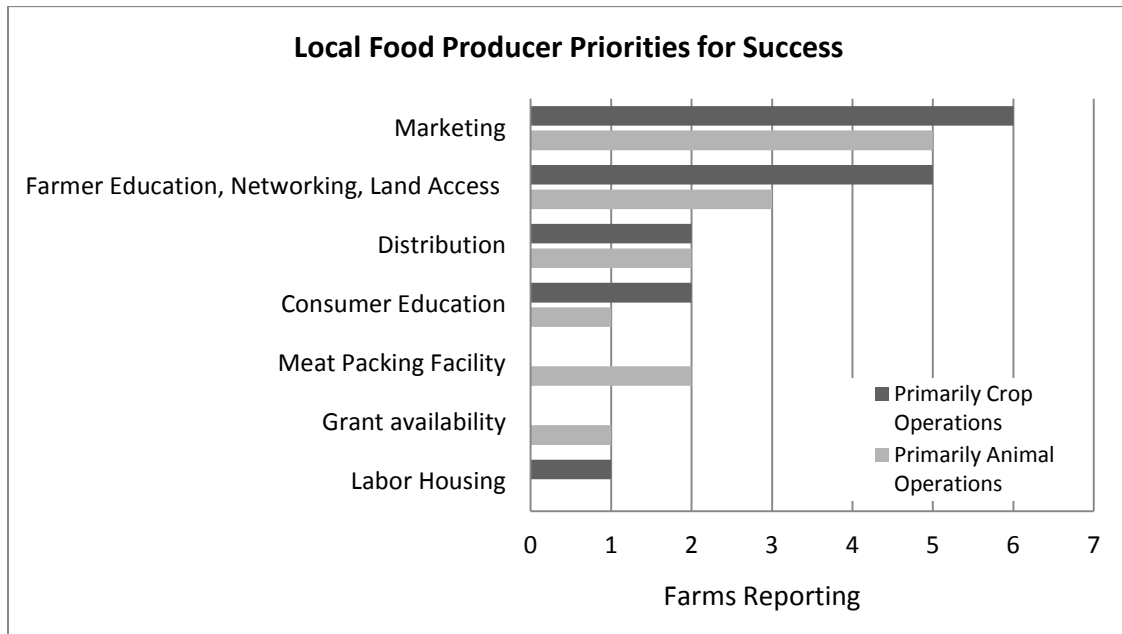


Figure 7: Producers identified their priority for outside assistance to increase farm business success

Economic Impact Results

To determine the total economic impact related to the local food sector, we used an input-output analysis. As mentioned above, there are three different types of economic activity that are included in our definition of economic impact:

- 1) Direct Impact: the economic activity on local food producers' farms and ranches,
- 2) Indirect Impact: the economic activity of businesses that supply local food producers with inputs (what producers buy to produce their product), and
- 3) Induced Impact: household spending of wages and profits (where producer and input suppliers profit and wages are spent).

To support this effort, the USDA AMS local food Toolkit was used to inform this report and the IMPLAN modeling software was used for all impact calculations. First, the Toolkit was used to answer our central question, "What economic impact do producers who market food locally have in the tri-county region?" As a reminder, the results reported here cover 28 farms that reported complete sales and expenditure data and reflect a portion of the total local food producer economic impact. Second, we developed hypothetical scenarios that reflect the potential economic impact that could result from expanding the local food system in the region.

Total Economic Impact of Existing Local Food Producers in Central Oregon

We found that the 28 Central Oregon local food producers surveyed contributed \$1.5 million in total sales and supported an additional \$1.1 million in sales through other industries across the economy. A total of 28.4 full and part-time jobs in the farm sector supported an additional 11 full and part-time jobs in other industries (see Table 4). These results and more are described below.

1) Economic activity on local food producers’ farms and ranches (Direct effect)

In 2014, the producers in our sample directly supported 28 full and part time jobs, generated \$1.5 million in total sales, and created \$248,000 in income. This total job number does not fully account for proprietor’s labor as farm owners did not consistently report their own contributions- this also does not count the 21 family members and friends who worked on these farms without pay.

2) Economic activity of businesses that supply local food producers with inputs (Indirect effect)

Farmers also support a number of businesses through the purchases they make to conduct their agricultural business. Our study found that \$0.57 of every dollar of output (from majority crop producers) is spent in the local economy to support their business for items such as seeds or gas, whereas the majority animal producers spend a higher amount: \$0.69 of every dollar. The purchases made by local food producers supported an additional 7 jobs, \$173,500 in labor income, and \$679,000 in sales across the broader economy.

3) Household spending of wages and profits (Induced effect)

A final level of economic activity associated with direct marketing producers can be calculated from the household spending of earnings and profit from farmers, farm workers, and the owners and workers in businesses that supply farmers. A portion of these activities generate additional economic impact when households buy goods and services within the tri-county region. An additional 4 jobs, \$148,000 in labor income, and \$444,000 of sales are supported by the household spending of wages and profits from local food producers and their input suppliers.

Table 4: Economic Impact of Surveyed Local Food Producers

	Jobs	Total Sales	Labor Income
Local Food Producers (direct)	28	\$ 1,459,000	\$ 248,000
Businesses that supply producers (indirect)	7	\$ 679,000	\$ 173,500
Household spending of wages and profits (induced)	4	\$ 444,000	\$ 148,000
Total Economic Impacts	39	\$ 2,582,000	\$ 569,500

Many local food producers who participated in our survey are still growing their business with capital expenditures, testing product mixes, and planning to expand into new markets. Given these potential changes, the current economic activity in the local food sector does not represent the full

potential. One of the strengths of the IMPLAN system is its ability to build possible scenarios and demonstrate how the rest of the economy might react to change within one or more sectors. Survey results and local knowledge were used to create three scenarios that represent expansion within the local food system. These scenarios are intentionally discussed independent of one another.

Modeling Three Scenarios to Determine the Potential Economic Impact of Expanding the Local Food System in Central Oregon

The current level of local food production is likely to increase as producers continue to change their operations in response to recognized and unmet market demand. In order to meet this demand, farmers need a reliable value chain and wholesale infrastructure that allows them to market their product and focus on farming versus marketing. Currently, large portions of the food supply in the region are imported, which further suggests that if production increases, demand is waiting.

Three scenarios were developed to determine the potential economic impact of investing in the local food system. These three scenarios provide estimated economic impacts of expanding farm production and some forward linkages as a portion of the new supply reaches consumers.

- Scenario 1) expand and intensify the total production of current producers, thereby increasing the total volume of local food products available.
- Scenario 2) add a food hub with supply chain services including storage, minimal processing, aggregation and wholesale support and marketing for producers.
- Scenario 3) shift consumer purchases from retail grocery stores to direct purchases from farmers.

The three scenarios were constructed to consider resource constraints and opportunity costs following the USDA AMS Toolkit. In the Central Oregon region, the top resource constraints are the available agricultural land and land with irrigation rights; however, it was concluded that our modest expansion of production would not require more land than is currently held by local food producers with existing irrigation rights. Instead it assumes producers will use their land more intensely as a result of additional experience and new stable markets. The second consideration, opportunity costs, is an estimate of the economic activity that might be displaced from one sector in order to accommodate proposed growth in the local food sector. A brief summary of the assumptions and opportunity costs for each scenario is below.

- Scenario 1 increases the supply of local food from farms without offsetting existing agricultural production and was based on knowledge that producers in the area have underutilized acres. This scenario does not model changes in demand in response to the increased supply.
- Scenario 2 adds new wholesale and distribution capacity in the region by creating a food hub. This scenario does not assume: a) that the food hub will displace existing wholesalers or distributors; b) that any new building will be constructed; or c) model an increase in farm production.

- Scenario 3 models the net economic impact of shifting consumers' purchases from imported food purchased at a grocery store (small loss of economic activity) to locally produced food purchased from farmers (increase of farm production).

These estimates are deliberately conservative and should not be interpreted as guaranteed outcomes. Input-output modeling does not estimate the feasibility of any of these scenarios, and there was no attempt to quantify the amount of investment necessary. Table 5 provides a summary of each scenario. The results presented in this table for each scenario should be considered independently from one another. The Baseline is the survey based results of economic impact that was occurring in 2014 and explained above. The relationship between each scenario and 2014 production is explained in the bottom row. Table 7 provides the estimated economic impact of implementing all three scenarios – note this impact is different than adding up all of the impacts in Table 5 to avoid double counting economic activity. All of the reported values below combine the three different types of economic impact (1) direct, 2) indirect, and 3) induced) into a single estimate of potential jobs, labor income, and sales.

Table 5: Summary of the Potential Economic Impacts of all Modeled Scenarios

Economic Impacts	Baseline: 2014 Production on 28 Farms	Scenario 1: Intensify Production on Existing Farms (Increase supply only, does not model demand changes)	Scenario 2: Open a Food Hub to Support Wholesale Market Access (No increase in farm production)	Scenario 3: Shift \$775,000 of consumer purchases from grocery to direct (increase farm production)
Jobs	39	63	9	13
Labor Income	\$569,500	\$1,332,000	\$329,000	\$263,000
Taxes, returns to investors*	\$411,000	\$737,000	\$96,000	\$139,000
Sales	\$2.6 Million	\$5.4 Million	\$642,000	\$1.3 Million
Resource Constraints	Not considered	Underutilized irrigation	None, responding to increased production	Fixed consumer budgets
Opportunity Costs	Not considered	Underutilized acres	No other businesses would be displaced, new demand	Displacing existing non-local food purchases
Potential Needed Investments	None	Greenhouse financing, Adjusted product mix, Utilizing direct and wholesale markets	Aggregation, storage, processing and distribution capacity	Education and outreach for farmers and consumers
Relationship to Baseline Scenario	N/A	Replaces Baseline	Can be added to Baseline but it requires more farm production	Can be added to Baseline

*This category is commonly referred to as additional value added” in IMPLAN reports. Adding these numbers with the Labor Income values produces the traditional input-output measure of value added.

Scenario 1: Intensify Production on Existing Farms

Producers in this region face unique growing challenges. The region has a short growing season and often requires irrigation. Based on local knowledge and direct observations, there are currently idle irrigated acres that could be used for additional agricultural production, and most of the ranchers are dry-land ranching and do not need irrigation. While the exact number of acres is unknown, there is potential for modest expansion without displacing existing land uses. In addition, there are agricultural practices, such as greenhouses, that could increase per acre production.

To develop this scenario, COIC and HDEFA used their knowledge to select six producers to approximate an expanded local food system. These selected producers have been in operation for at least two years (prior to 2014); seek a long term sustainable farm business; showed a loss of no greater than \$20,000; contained a representative mix of products and farm size; and engaged in both direct and wholesale markets. We extrapolated their expenditures, wages, and profits to a scale of 30 farms (see Table 6). We took into consideration that the selected farms reflect the diversity of scale and structure, but recognize that they are not the most profitable in the sample.

Table 6: Comparing Local Food Producers Under Current Production and Expanded Production (Scenario 1)

	Crop Producers		Animal Producers		All Producers
	2014	Scenario 1	2014	Scenario 1	Scenario 1
Total Sales	\$683,289	\$1.2 million	\$775,842	\$1.9 million	\$3.1 million
Total Employment	12	18	16	23	41
Output/Worker	\$55,000	\$64,500	\$50,000	\$80,700	\$72,600
Employee Compensation	\$5,900	\$14,400	\$8,400	\$19,300	\$16,850
% of Revenue Spent on Inputs	57	65	69	61	62

Relying on the survey data of these six farms, we revised our IMPLAN model to again estimate the economic impact. Collectively, farms and ranches in this scenario would generate \$3.1 million in sales and support 41 full and part-time employees with \$691,000 in labor income on the farms. An additional 22 jobs and \$641,000 in labor income would be supported throughout the rest of the economy by the economic activity on these farms and ranches, and contribute an additional \$737,000 in paid taxes and returns to investors and lenders.

Scenario 1 Considerations and Caveats

This scenario considers the potential impact of increasing the amount of farm production in Central Oregon, and is deliberately conservative. It would require a total of 1,067 acres for all production, excluding beef cattle. This assumes 25 acres of grain production; 118 acres of vegetable, melon and potatoes; 15 acres of fruit trees; 5 acres of greenhouses; 10 acres of poultry; 100 acres for horse, sheep, goat, and other animals. The scenario further assumes that the number of beef animals used for local marketing and consumption would increase from 739 to 1,765 animals. Some of the existing ranchers may be able to increase their stocking rates, or likely cattle producers in the tri-county region would shift from other markets to local markets.

This scenario would require additional infrastructure and market incentives, but appears possible given the existing land held by local farm producers. The survey documented 46 acres of field vegetables and 2.2 acres of greenhouses under production; both of which require irrigation. Under this new scenario the number of field vegetable acres needs to triple and greenhouse capacity should double. There are a total of 1,203 irrigated acres that are either owned or currently leased, this scenario would require approximately 10 percent of these acres be used for intensive vegetable/greenhouse production. An additional 3 percent of these acres would be devoted to grain and fruit and nut tree production. The remaining irrigated acres in combination with the unirrigated acres would accommodate hay and livestock production.

Farmers are making capital investments in their farm operations and may need assistance resourcing additional capital. This scenario also requires off-farm investments of improved wholesale market support and technical assistance for existing farm operations. Based on local knowledge, this level of intensification seems reasonable. Creating this additional production will trigger other changes in the economy as demand responds to the increased supply of local produce and animal products.

Scenario 2: Open a Food Hub to Support Wholesale Market Access

Stabilizing the local food system for wholesale markets will require additional supply chain activities including: aggregation, simple processing, dry/cold/freezer storage, distribution and transportation systems, and a central coordination and administrative function to connect producers to markets, typically referred to as a “food hub.” The food hub could be a new business or assume aspects of existing businesses such as distribution – this scenario assumes no construction costs. For the Central Oregon region, a food hub that focused on providing wholesale services would complement existing businesses and not compete for direct retail sales.

Based upon previous research conducted by COIC and upon the 2015 National Food Hub Survey, we assumed that a minimum of \$1 million in sales per year are required for the food hub to be sustainable.ⁱⁱ We estimated the additional economic activity generated from a food hub would support an estimated 9 full and part-time jobs, \$329,000 of additional labor income, and \$642,000 of additional sales throughout the broader economy. As noted above, these impacts are based only on the operation of the food hub and do not include the increased farm activity that may result from expanded access to markets.

Scenario 2 Considerations and Caveats

Reaching a total of \$1 million in sales requires purchasing approximately \$610,000 of local food products: this represents approximately 40% of the increased supply modeled in Scenario 1. As farmers noted on the survey, while some are interested in accessing wholesale markets they are also concerned about price and sufficient volume. It may take time to be able to establish a volume of sales as the food hub builds relationships with both buyers and farmers and farmers adapt to changing market demands. Research is being done nationally to figure out how to stabilize economic activity in this sector. This report does not attempt to provide a feasibility study for accomplishing these efforts

as this has been accomplished by COIC.

Scenario 3: Shift Consumer Purchases From Grocery Stores to Local Food Producers

This scenario examines the net economic impact of consumers shifting from purchasing imported vegetables at a grocery store to purchasing locally produced vegetables directly from farmers or another wholesaler (see Table 7). This scenario assumes that consumers in the region have fixed budgets for food purchases. As supply of locally produced food increases, local demand for all food will remain the same.

The net impact of shifting \$775,000 in retail food purchases to local farmers results in an increase in 13 jobs throughout the economy (17 jobs are created and four are lost), a \$263,000 increase in regional labor income, and an additional \$139,000 of other value added activities. This scenario assumes that there is an opportunity cost to growth and that consumers are spending less money at grocery stores (described below).

When consumers purchase products at retail stores, 28% of their total purchase is assumed to be retained by the retailer and used to cover the costs of running the store, paying employees, and retailer profit. The remaining 72% of all sales are assumed to be spent purchasing the products that are sold in the store and that these products are produced outside of the region. Switching \$775,000 of food purchases from the retail food sector to local food farmers and ranchers retains more of the total sales within the region (an estimated 97% compared to 28%) which supports not only the farms but the businesses supporting farms and household spending.

The loss of \$775,000 of commercial grocery stores sales would result in an estimated - \$120,000 of labor income and loss of 3 full and part time jobs in this sector. Local businesses that support grocery stores would lose \$75,000 in related sales, which would translate to a loss of 1 job and a \$25,000 loss in labor income. The sectors of the economy that are most closely tied to retail food stores include the real estate sector, wholesale trade and transportation sectors.

Scenario 3 Considerations and Caveats

This change represents a small portion of total grocery store sales in this region. Currently, there are an estimated 2,104 full and part time jobs in grocery stores in Central Oregon, and \$128 million was spent at these grocery stores in 2014. Shifting \$775,000 in sales away from the commercial grocery store sector would represent 0.6% of all sales. Reaching \$775,000 in sales could occur if 10% of households in the region spent \$93 a year on local food products. This report does not attempt to quantify the resources necessary to shift consumer purchases.

Total Economic Impact Across All Three Scenarios

The three scenarios above were modeled to represent three distinct interventions into the local food system, however, each scenario assumes different demand and supply adjustments. Therefore, adding the scenarios together would create excess on farm production, Table 7 provides a combined

estimate of economic impact that does not overestimate on-farm production beyond the assumptions in Scenario 1. It is impossible to fully model all of the changes that may occur in the region’s economy as the local food sector expands. One possible explanation for where the increased farm production from Scenario 1 would be sold is explored in Table 8 below. Table 7 provides a set of estimates assuming:

1. Local production increases as described in Scenario 1,
2. A food hub is operating but as described in Scenario 2,
3. Consumers have already shifted their purchases – a portion of Scenario 3.

Table 7: Net Economic Impact Potential of an Expanded Local Food Sector

	Jobs	Total Sales	Labor Income
Local Food Producers & food hub employees (direct)	43	\$ 3,490,000	\$ 821,000
Businesses that supply producers (indirect)	16	\$ 1,604,000	\$ 433,000
Household spending of wages and profits (induced)	9	\$ 900,000	\$ 262,000
Total Economic Impacts	68	\$5,994,000	\$1,516,000

Table 8 provides hypothetical market channel distribution sales for the increased volume of on farm production (Scenario 1), the addition of a food hub (Scenario 2), and changes in consumer food purchases (part of Scenario 3). We estimate that nearly 40% of all of production would be sold to a food hub, which would provide the intermediary role between producers and wholesalers: restaurants, grocers, and institutions. Currently, farm direct markets account for 56% of total sales of surveyed producers. We assume that these channels will continue to grow but more slowly and will account for 48% of the expanded total sales. Further, we note that a few local food producers are already accessing wholesale markets (restaurants, grocers, and institutions) accounting for 12% of all sales. We assume that this percentage will likely decrease with the addition of a food hub as farmers find it easier to sell products to the food hub instead of working with wholesalers. These market destinations are hypothetical but are important in considering the potential economic activity that might be displaced by an increase in local food production. The economic impact of this combined scenario does not attempt to estimate the additional jobs that would be created in wholesale businesses that will be handling an increased volume of food.

The final column in Table 8 provides an estimate of the potential amount of grocery store purchases that could be replaced by consumers choosing to buy from farmers directly or through Locavore. The economic impact of these lost retail sales are used in Scenario 3. We assume that roughly half of the expanded farm production in the three county region will replace grocery store purchases outright assuming more consumers will chose to purchase food directly from farms or through Locavore. The rest of the increased production is assumed to replace imported food and food

products used by restaurants and institutions. Replacing imported food with locally produced food retains more money within the Central Oregon economy and we do not model which economies will experience these lost exports.

Table 8: Potential Destination for Additional Local Food Production

Market Channels	Current Market Channels		+	Destination of New Sales		=	Expanded Market Channels		Lost Grocery Store Purchases from New Sales
	Sales	%		Sales	%		Sales	%	
Farm Stands	\$391,745	26.8		\$193,255	12.6		\$585,000	19.5	\$193,255
Farmers Market	\$312,812	21.4		\$197,188	12.8		\$510,000	17.0	\$197,188
CSAs	\$112,554	7.7		\$212,446	13.8		\$325,000	10.8	\$212,446
Other Wholesale	\$171,023	11.7		\$48,977	3.2		\$220,000	7.3	\$48,977
Locavore Wholesale	\$141,788	9.7		\$123,212	8.0		\$265,000	8.8	\$123,212
Food Hub	NA	0.0		\$610,000	39.7		\$610,000	20.3	
Restaurants	\$106,707	7.3		\$38,293	2.5		\$145,000	4.8	
Grocery Stores	\$51,161	3.5		\$53,839	3.5		\$105,000	3.5	
Schools/Hospitals	\$19,003	1.3		\$14,997	1.0		\$34,000	1.1	
Auction	\$42,390	2.9		\$16,370	1.1		\$58,760	2.0	
Other Farms	\$45,314	3.1		\$29,686	1.9		\$75,000	2.5	
Other channels	\$67,240	4.6		NA	0.0		\$67,240	2.2	
Total Sales	\$1,461,736	100		\$1,538,264	100		\$3,000,000	100	\$775,078

A Context for these Results

Each type of economic activity produces different effects within a broader economy. When estimating economic impact with an input-output model, these impacts are most easily compared across sectors with multipliers. A multiplier is the ratio between the total economic impact associated with an industry divided by the amount of direct impact that occurs within the industry. Multipliers are most useful when they have a benchmark, or another industry to provide context to the values of interest. The Central Oregon economy has a diverse set of industries, and yet commodity agricultural sectors may provide the best comparison to local food producers (see Table 9). This is consistent with other work that has used the USDA Toolkit.

Comparing Multipliers

Table 9 provides four multipliers to describe the economic impact of local food producers and compares their impact to commodity agricultural producers. Employment and total output (sales) are the most commonly used multipliers to determine the economic impact on the economy. Each multiplier is described below.

The employment multiplier tells us how many jobs are generated throughout an economy for every job within the sector of focus. Table 9 provides employment multipliers for local food crop and animal-only producers, and three commodity comparison crops (vegetables; all other crops; and beef cattle). In the employment multiplier, local food crop production generates similar but slightly fewer

additional jobs throughout the economy than commodity vegetable production or commodity beef cattle ranching, but more than all other commodity crop production. For example, one on-farm local food producer job supports an additional .38 to .48 jobs throughout the rest of the economy. This employment multiplier represents formal paid work.

Labor income offers another way to measure economic impact. The labor income multiplier illustrates the ratio of how many dollars of labor income (owners and employees) are supported throughout the economy by each dollar of income earned by local food producers and their employees. The labor income multipliers are higher for local food crop producers than the comparison commodity crop categories. The labor income multipliers are similar and higher among local food animal producers and commodity beef cattle ranchers not selling in local markets. These local food producer sectors have higher labor income multipliers partially because they purchase a lot of inputs and support economic activity and therefore employees in the broader economy and partially because the wages among these producers were considerably lower as compared to commodity producers. Lower wages can partially be explained by the number of low paid interns which distort the average wage across all operations.

Table 9: Comparison of Multipliers

	Local Foods Crop Producers	Vegetables, vegetable seed, potatoes	All other crops (hay)	Local Foods Animal Producers	Beef Cattle
Employment	1.38	1.41	1.16	1.40	1.62
Labor Income	1.87	1.52	1.75	2.83	2.96
Total Value Added	1.98	1.27	1.60	2.84	1.80
Total Output	1.74	1.38	1.62	1.79	1.66

Source: edited IMPLAN v3 model, 2013 data

The total value added multipliers combine the economic impact of labor income, taxes, and returns to investors and lenders. This definition of “value added” captures the amount of the final sale price which can be attributed to skilled labor, management decisions, and profits, allowing a calculation of “value added” for even raw commodities. This measure provides a summary statement of all of the economic value of the unique labor and skills and other economic activity that adds value to the products purchased and produced by local food producers. Local food producers have substantially higher value added multipliers in part because they require more labor. This multiplier captures the extent to which this sector is monetizing skills, paying owners, and generating returns to investors and lenders.

A final set of multipliers is total output, this is a measure of how many dollars of sales throughout the rest of the economy are produced for every dollar of sale within an industry. This report has not focused on output totals previously following the recommendations of the USDA Toolkit which notes the greater potential for overstating results. Although commonly used, it is hard to assume that all of the additional output that occurs throughout an economy would disappear if the primary industry no longer existed, regardless of the choice of primary industry.

Our research produced similar results to previous studies, in Central Oregon direct marketing farmers spend more of their revenue on supplies and buy more supplies locally as mentioned above. These two factors increase the amount of additional economic activity that occurs. Not all producers in our survey were operating at a profit, a finding which is distorted by excluding additional revenue generating activities like timber sales and agri-tourism, by relying on a Schedule F tax form to record profits, and that many of the regions farmers are actively investing in growing their business.

Comparing Labor Intensity of Production

Another common way to compare economic impact across sectors also focuses on employment effects. Table 10 offers a comparison of the estimated jobs required to produce \$1 million of sales within each industry. As a reminder this model assumes constant returns to scale. As noted above, more jobs are required to produce local foods than similar non-local agricultural production. Combining the employment multiplier with the labor intensity estimates we conclude that local food producers have more labor intensive operations which benefit the economy by providing more jobs, and most of the jobs that are created as this sector expands occur on farms and ranches.

Table 10: Jobs required to produce \$1 million in agricultural sales across production types

Production Type	Full and Part-time Jobs required
Direct marketing crops	18
Commodity crops	6
Direct marketing livestock	20
Commodity beef	11
Commodity dairy	5
Commodity poultry	2

Summary

This study estimates the economic impact of local food producers in the Central Oregon region using the AMS USDA Toolkit [The Economics of Local Food Systems](#). A detailed operation and expenditure survey was used to collect data from Central Oregon farms and ranches who primarily focus on growing and selling food products through diverse market channels within the Central Oregon region in order to customize an IMPLAN model. This survey also provided an overview of local food producer characteristics.

The descriptive farm operation data from the survey revealed a diversity of crop and animal production by a set of producers actively adapting to growing markets. The majority of surveyed local food producers were making on-farm capital investments and experimenting with different product mixes. Many farm operations were established after 2010 and were not profitable in 2014, based on their Schedule F responses. Farmers in this high desert region need irrigation rights, water access and season extenders to support a range of local food production.

Based on 2014 production local food producers provided a regional economic impact of approximately \$1.5 million in total sales, a total of 28.4 full and part time jobs, and supported an additional 11 full and part time jobs in other industries. Local food producers directly contributed or indirectly supported \$2.6 million dollars of economic activity in the tri-county region.

We estimated the economic impacts that could result from growth in three scenarios: (1) intensifying the current production on existing farms, (2) establishing a food hub to facilitate expanded production, and (3) the net economic activity that results from shifting consumer purchases to local foods. Each of these scenarios represents distinct types of changes in this local food system. Increased supply of local food needs to match unmet demand, which are modeled in Scenarios 2 and 3 and provide new potentials for the current marketplace.

Farmers and ranchers in the region were pursuing growth and adapting their production to reach new markets and have to balance their production (supply) with demand. Marketing assistance was the most frequently cited need among local food producers. In addition to providing market intelligence and support, COIC and HDFFA need to balance producer readiness with the overall volume and marketplace and consumer demands. Some food systems have pursued establishing a food hub to provide a key intermediary step, but not without difficulties. The food hub needs to meet a certain threshold of sales to be viable, but farmers are constrained with how rapidly they can scale up, and have difficulty producing without a known market destination and price. This report provides little clarity on the matter, but inadvertently illustrates this dilemma.

Given that Central Oregon, specifically the city of Bend, has one of the fastest growing populations in the nation (ranked 6th in 2017) and is a popular destination for recreational based tourism, the region's demand for locally produced foods could grow. Despite the challenging growing conditions in the region, there are underutilized irrigated acres which suggest that this sector has the key resource input to continue to grow.

Local food producers contribute a wide range of benefits to a region, and in this report we remain narrowly focused on the economic impacts that were modeled through three rounds of spending (direct, indirect, and induced) in an input-output model. Total economic impact varies by industry and is most readily impacted by the amount of the final sales price that is used to purchase inputs, the degree to which those inputs are purchased locally, and the labor intensity level of the farm sector and the businesses that provide inputs to the farm sector. Compared to non-local commodity agricultural production within the region, local food producers spend more of their total sales on inputs, purchase more of their inputs locally and have more labor intensive farm operations. As a result, local food production supports more sales throughout the broader economy but fewer jobs and supports more dollars of wages, profits, taxes and returns to investors for every dollar within the industry than commodity agriculture production.

ⁱ The toolkit and a wide range of additional resources can be accessed here: <https://localfoodeconomics.com/>

ⁱⁱ Assumes the survey median of 9 jobs (for food hubs in business more than 2 years), establishes one million in sales and the survey average of expenses as a percentage of revenue see page 40 of Hardy, J., Hamm, M., Pirog,

R., Fisk, J., Farbman, J., & Fischer, M. (2016). Findings of the 2015 National Food Hub Survey. East Lansing, MI: Michigan State University Center for Regional Food Systems & The Wallace Center at Winrock International. Retrieved from <http://foodsystems.msu.edu/resources/2015-food-hub-survey>.

Appendix A Central Oregon Local Food Farm Survey



The Central Oregon Intergovernmental Council (COIC), High Desert Food and Farm Alliance (HDFFA), Oregon State University Extension (OSU) and Rural Development Initiatives (RDI) are working with local producers in Deschutes, Jefferson and Crook Counties to create an estimate of the current size of the local food economy. This estimate will detail the total value of sales and the total jobs in the farm industry as well as the additional jobs and sales that support the industry or are made possible by the sale of local food products in the region. This report will produce an “economic multiplier” for the portion of agricultural production that is marketed and sold for regional consumption (local foods).

Similar reports have been produced for other agricultural production and other industries and this information can provide valuable insight into the current size of economic activity and the potential benefits of future investments that expand the industry. This data will complement previous efforts by COIC and HDFFA that have focused on estimating the demand for regionally produced food.

The quality of the report depends on gathering data from actual growers in our region to customize national averages in a variety of crop and livestock production areas. The attached survey contains questions that will allow Extension agents at Oregon State University to customize the economic model and run the results.

We would like to ask you to participate in our survey. Jess Weiland from HDFFA will be contacting you soon to see if you have any questions and if you are willing to schedule an interview to answer the survey questions listed below. This interview will take no longer than 90 minutes. Our goal is to interview 73 producers in the tri-county region and provide averaged data by major crop/livestock category to Oregon State. No individual data will be shared with anyone outside of the interview and your farm name will not be recorded with your survey responses at any time. You can refuse to answer any question and end the survey at any time.

The economic results will be shared publicly and you will be provided access to the final report. We are also working with Rural Development Initiatives (RDI) to publicize the results and create a strategy for future actions at the end of the report. Our goal is to support and improve the local food system in our region, we would be more than happy to follow-up with information or discuss other potential projects or services that might support your farm business. If you have any questions, please let us know. We recognize your time is valuable and we hope you will consider participating in helping us improve current economic information about our local food industry.

Sincerely,

A handwritten signature in black ink that reads "Katrina Van Dis".

Katrina Van Dis, Program Administrator
Central Oregon Intergovernmental Council
kvandis@coic.org
541-504-3307

A handwritten signature in black ink that reads "Jess Weiland".

Jess Weiland, Food & Farm Director
High Desert Food and Farm Alliance
jess@hdfha.org
262-424-8481

Appendix A Central Oregon Local Food Farm Survey

1. In which county is your farm business located? _____

2. When did this farm business first start? _____

3. Describe your farm operation:

Type of farm operation	Acres or # of animals	Sales (y/n)	% of total gross sales
Oilseed farming			
Grain farming			
Vegetable and melon farming			
Fruit tree, hazelnut, and berry farming			
Vegetable seed production			
Greenhouse, nursery, and floriculture production			
All other crop farming (Hay, grass seed, hops, etc.)			
Cattle ranching and confinement			
Dairy cattle and milk production			
Poultry and egg production			
Horses, pigs, sheep, and other animals			
Other:			
Total			100%

4. Describe the land in this farm business. Total Acres _____

Owned _____ # Rented or Leased _____ # Irrigated _____

5. Using 2014 data, estimate total annual gross sales, operating expenses, and total employees

Total annual sales (\$ line1a)	Total operating expenses (\$) line 33	Total annual payroll

# Paid employees				Unpaid workers (incl. family)
Part-time	Full-time	Seasonal Part-time	Seasonal Full-time	

Appendix A Central Oregon Local Food Farm Survey

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Did any of the farm employees live outside of the tri-county region (Deschutes, Jefferson, Crook)?

If so how many? _____ Outside of the state? If so how many? _____

6. Please describe where the farm business sold its products in 2014 both where and by which marketing channels. *It may be easiest if you complete the ' % of total sales' column first.*

Marketing channel, sales outlet	% of total sales	% of individual category sales by location (where you sold it)*			
		% in Crook, Jefferson, or Deschutes	% sold within Oregon	% sold outside Oregon	TOTAL
SALES TO OTHER FARMS					
DIRECT SALES:					
Farmer's Markets					
CSAs					
Farm Stands					
WHOLESALE SALES					
Restaurants					
Schools/hospitals					
Grocery stores					
COMMODITY SALES					
Sold to a grain elevator					
Auction					
OTHER					
TOTAL	100%				

Appendix A Central Oregon Local Food Farm Survey

7. Please describe the purchases related to operating the farm business and where those purchases were made.

TOTAL (2014) OPERATING EXPENSES FROM QUESTION 5/ Line 33: _____

Cost Description	% of all costs	% in Crook, Deschutes Jefferson	% purchased in Oregon
Farm vehicle expenses (line 10)			
Pesticides and other agricultural chemicals except Fertilizer (line 11)			
Conservation expenses (line 12)			
Custom hired labor: soil prep planting and cultivation, crop harvesting, postharvest crop activities (line 13)			
Depreciation of farm machinery and equipment (line 14)			
Feed (line 16)			
Fertilizer and lime (line 17)			
Freight and trucking (line 18)			
Gasoline, fuel, oil (line 19)			
Insurance – other than health (line 20)			
Mortgage interest paid to banks (line 21a)			
Interest on other loans (line 21b)			
Labor hired not for custom work (line 22)			
Rented/leased equipment for farm use (ag machinery, vehicles, construction equip) – not contracted work (line 24a)			
Cost to rent/lease land, animals, grazing fees, other (line 24b)			
Repair and maintenance of farm buildings, land, fencing and other non-residential structures (line 25)			
Seeds and plants (line 26)			
Storage and warehousing (line 27)			
Taxes (all – labor, property, sales) (line 29)			
Utilities – Electricity, natural gas, propane (Portion of line 30)			
Utilities – water for farm use (Portion of line 30)			
Veterinarian Services and medicine (line 31)			
Other:			
Other farm purchases from retail stores (Possibly line 28)			

Appendix A Central Oregon Local Food Farm Survey

Livestock purchases (feeder calves, rams, etc.)			
Marketing costs			
Waste disposal/hauling services			
Education/training programs/certifications			
Professional services (legal, accounting, engineering, surveying, web design)			
Total	100%		

8. In what markets and where is demand growing for the farm's production in 2015 compared to 2014?
9. What product(s) are you selling more of compared to 2014?
10. If not currently being done, is there interest to market farm products at the wholesale level?
Yes / No / maybe
11. Does the farm business use season extenders (ie: greenhouses, high tunnels or row covers)?
If so, what crops are grown and what months are they grown in?
12. Have you made any changes with crop production in the past 2 years? Why or why not.
13. Do you have plans to make any changes in crop production in the next 2 years? Why or why not.
14. Please circle any of the crops that are or will be under production in 2016 (see last page).
15. Please help us set some priorities on how we can help your farm business to expand and succeed. What one thing would help your farm business be more successful that you're unable to accomplish on your own?
16. You will be provided the findings from this report. How would you like to receive the information?
17. Based on your answers the questions today. Would you feel comfortable if we contact you if we have clarifying questions?

Appendix A Central Oregon Local Food Farm Survey

PRODUCE

Artichoke
 Asparagus
 Beans (snap, green, etc.)
 Beets
 Bok Choy
 Broccoli
 Brussels Sprout
 Cabbage
 Carrot
 Cauliflower
 Celeriac
 Celery
 Collards (including Kale)
 Cucumber
 Eggplant
 Garlic
 Herbs
 Kohlrabi
 Leek

Lettuce
 Head
 Mixed Greens
 Melon
 Onion
 Parsnip
 Peas
 Peppers
 Potato
 Pumpkin
 Radish
 Rutabaga
 Shallot
 Spinach
 Squash (winter)
 Squash (summer)
 Tomatillo
 Tomato
 Turnip

MEAT

Cow
 Pig
 Poultry
 Lamb
 Ostrich
 Goat
 Other

DAIRY All

FRUIT

Berry plants
 Fruit trees

NUTS

GRAINS

HOPS