



# OUTLINE

- Analytic Challenges
- Definitions
- Data Sources
- Key Cluster Measures
- Supply Chain Linkages
- Economic Impacts
- Fiscal Impacts
- Local Impacts
- Tax Savings
- Farm Risk and Sensitivity Analysis

## BACKGROUND AND ANALYTIC CHALLENGES

- Defining a supply chain for food and beverages “based on commodities grown in Washington,” i.e., excluding non-aquaculture fish harvesting, soft drinks, etc.
- Estimating the impact of a supply chain, thus measuring final demand and avoiding double-counting of value. In other words, what’s final demand, what’s intermediate within the activities included.
- Measuring the impacts by region and linking industry growth and scale with households.

# THEMES

- Farming and processing have large statewide **impacts**.
- Farming is risky. Farmers are both **weather-takers** and **price-takers**.
- Farming is an important economic pillar for the state and among many local communities.
- Food & Beverage Processing is a important driver of jobs statewide and locally.
- State tax programs are critical to managing volatility and preserving local communities.

# DEFINITIONS

What's included?

- **Crop Production activities**
- **Animal Production activities**
- **Agriculture Support activities:** horticulture services, contract machine harvesting, soil preparation, management services, storing, grading, cleaning, and packing crops, marketing and export assistance, and wholesalers specializing in farm supplies.
- **Food & Beverage Processing:** processing of Washington-sourced agricultural commodities. For example, includes dairy, wine, potato processing, but excludes commercial bakeries, soft drink manufacturing, and wild-caught seafood processing.
- **Wholesaling & Distribution:** consolidation, final shipment, and retail of Washington agricultural goods.

Source: U.S. Department of Agriculture, 2013; CAI, 2014.

# DEFINITIONS

## Food & Beverage Processing Activities Included

- Grain milling
- Frozen fruit and vegetable manufacturing
- Frozen specialty food manufacturing
- Fruit and vegetable canning and drying
- Dairy product manufacturing (except frozen)
- Animal slaughtering
- Meat processing
- Rendering and meat byproduct processing
- Shellfish processing
- Coffee and tea manufacturing
- Perishable prepared food manufacturing
- All other miscellaneous food manufacturing
- Wineries
- Breweries

Source: U.S. Department of Agriculture, 2013; CAI, 2014.

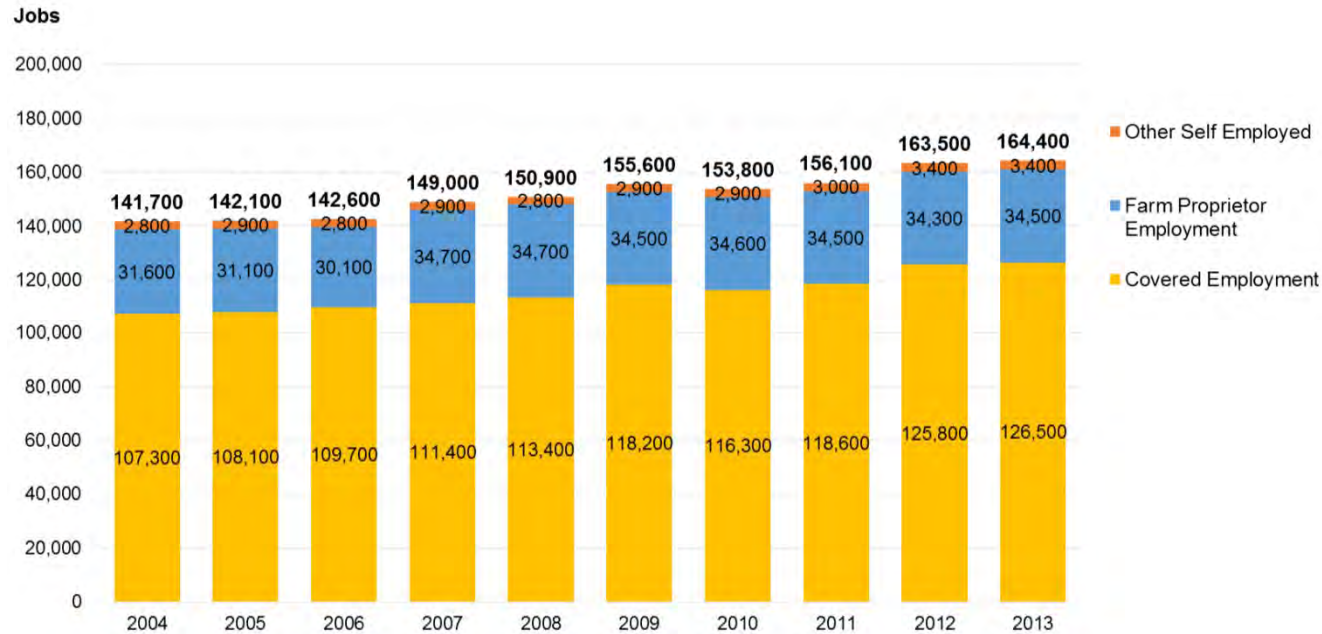
## DATA SOURCES

- National Agriculture Statistics Service (NASS)
  - Census and survey data
- Quarterly Census of Employment and Wages
- ESD seasonal employment reports
- Washington State Department of Revenue gross business income and tax payments by type and industry (NAICS)
- DOR tax disclosure reports (by company)
- IMPLAN social accounting matrices
- Washington State Input-Output Model
- Interviews with farmers, wholesalers, and processors.

Source: U.S. Department of Agriculture, 2013; CAI, 2014.

# KEY MEASURES

## Employment 2004-2013



Sources: U.S. Bureau of Labor Statistics, 2014; U.S. Department of Agriculture, 2014; U.S. Census Bureau, 2014; Community Attributes Inc., 2014.

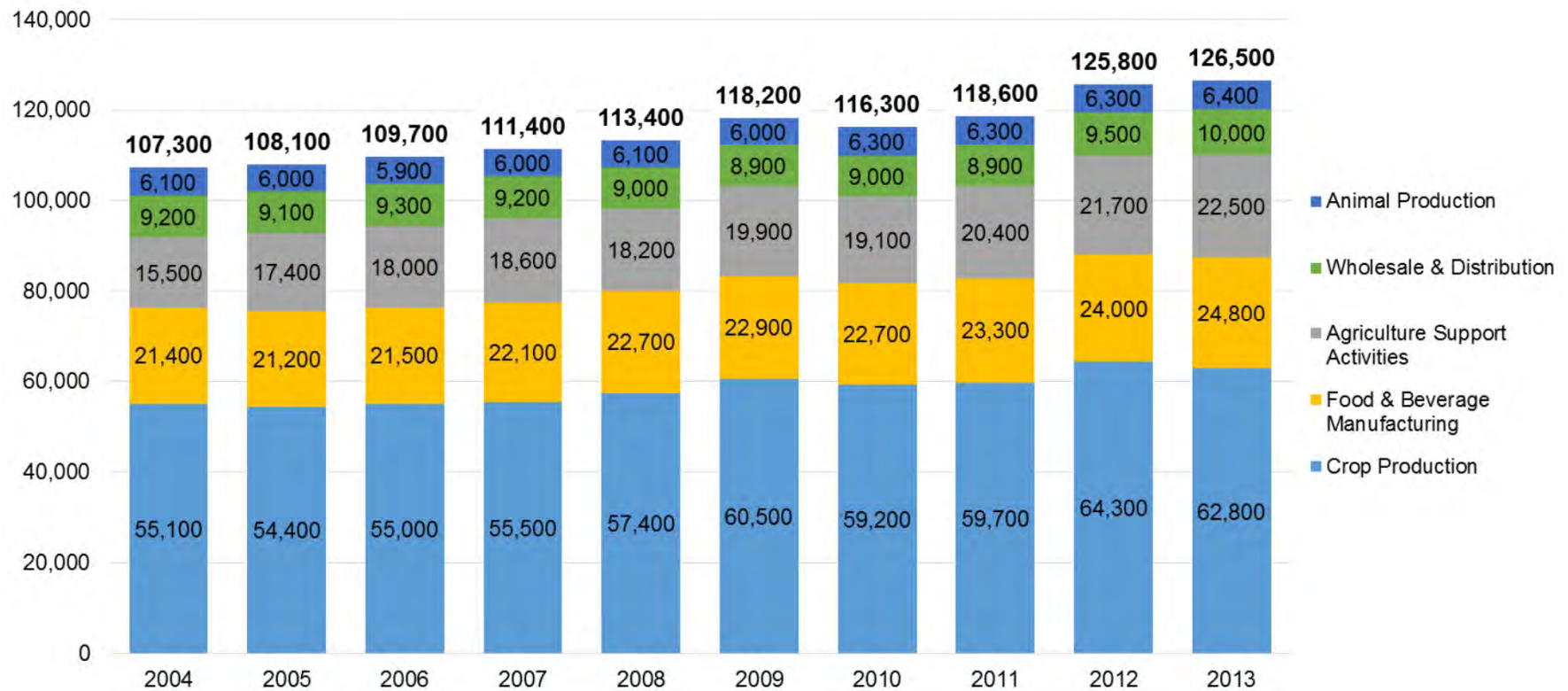
- **Employment:** covered employees, farm proprietors, and other self employed.
- From 2004 to 2013, employment increased by more than 22,000 in Agriculture and Food & Beverage Processing in Washington State.



# KEY MEASURES

## Covered Employment by Segment 2004-2013

### Jobs

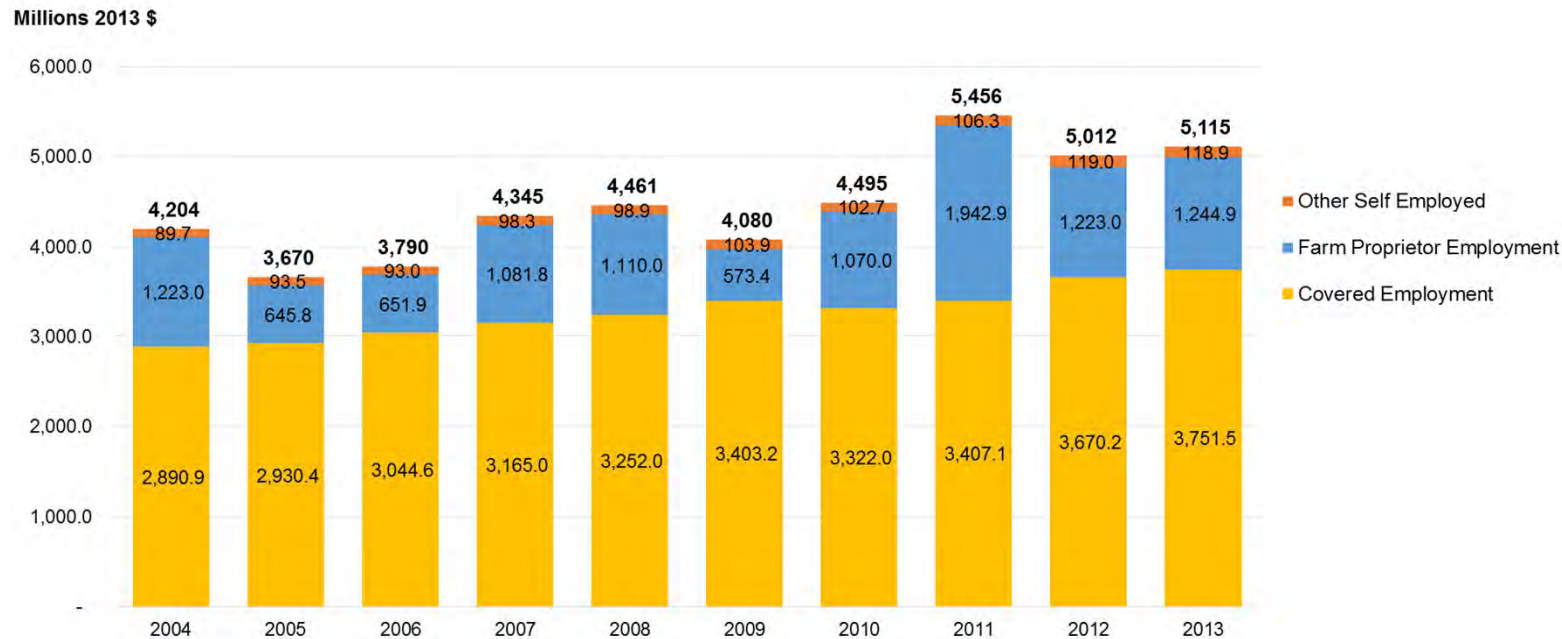


Sources: Sources: U.S. Bureau of Labor Statistics, 2014; Community Attributes Inc., 2014.

# KEY MEASURES

## Agriculture and Food & Beverage Processing Income (Less Benefits)

Millions 2013 \$, 2004-2013

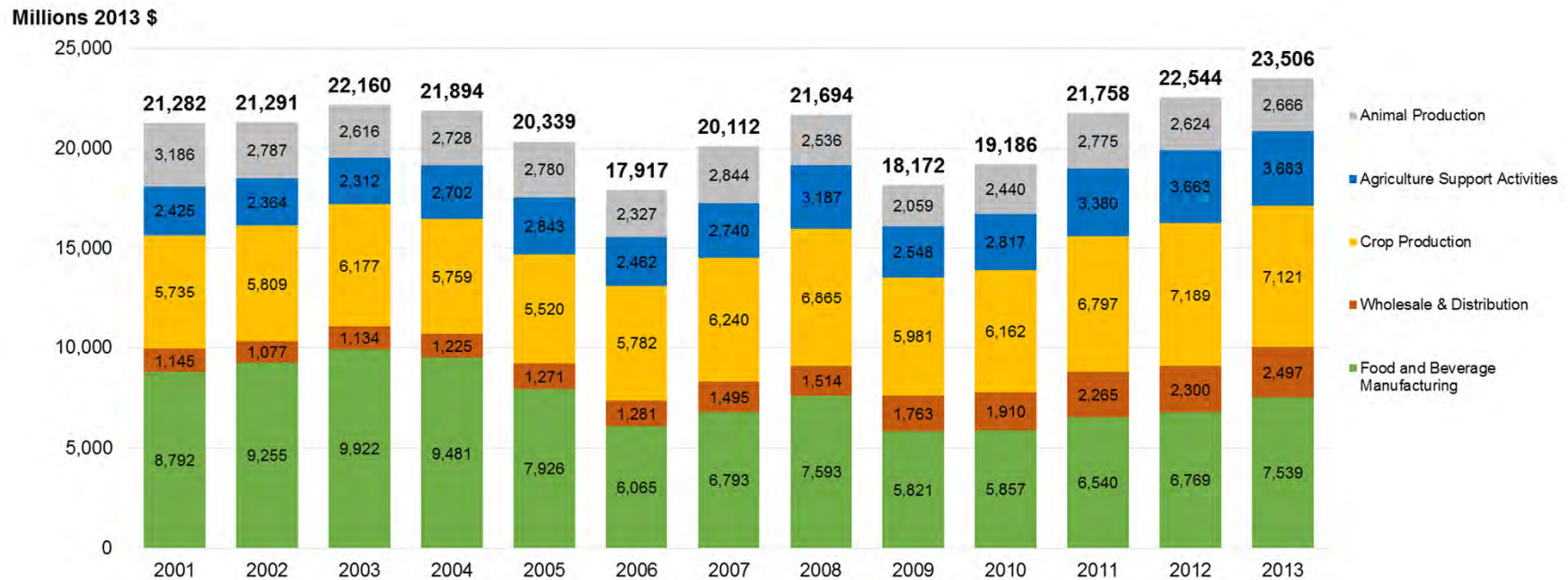


- Wages:** payroll-based wages and salaries. Proprietors, who make up a large portion of farmers in Washington, do not usually pay themselves wages. For proprietors, end-of-year net profits are used to reflect effective wages.

Sources: U.S. Bureau of Labor Statistics, 2014; Community Attributes Inc., 2014.

# KEY MEASURES

## Business Revenues by Segment 2001-2013, mils 2013 \$



- Total business revenues have increased 6.7% per year between 2009 and 2013.
- Some of this output is double-counted, e.g., potato revenues and potato processing revenues. Discussed further below.

Sources: U.S. Bureau of Economic Analysis, 2014; Washington State Department of Revenue, 2014; Community Attributes Inc., 2014.

## SUPPLY CHAIN LINKAGES

- **Potatoes:** 87% of output by value sold to processors.
- **Wheat:** Majority sold to consolidators, e.g., Tri-Cities Grain. Based on I-O accounting, on the gross margins among these consolidators included, the value of wheat treated as final demand.
- **Apples:** 95% by production value is sold as fresh pack. Roughly 17% of harvested apple tonnage (5% by value) sold to processors like Tree Top.
- **Dairy:** 90% of milk produced in Washington is processed in-state.
- **Grapes:** nearly all sold to processors, e.g., wineries.

# SUPPLY CHAIN LINKAGES

## Major Local Purchases by Food & Beverage Processors in Washington 2013

<b>Rank Input</b>	<b>Amount (mils \$)</b>	<b>Share of Total Purchases</b>
1 Animal Production	1,324.2	18.5%
2 Crop Production	921.7	12.9%
3 Food & Beverage Processing	571.6	8.0%
4 Wholesale	349.1	4.9%
5 Other Construction	206.8	2.9%
<b>Total Local Purchases</b>	<b>4,250.4</b>	<b>59.3%</b>

Sources: NASS, 2012; U.S. Agriculture Census, 2014; Washington State Office of Financial Management, 2013; Community Attributes Inc., 2014.

- **Food & Beverage Processing:** across all segments of food and beverage processing included, nearly 60% of total purchases were for in-state inputs.
- **Processors** also purchase from other processors, e.g., *ingredient processors* sell goods to Consumer Packaged Goods (CPG) processors.

# ECONOMIC IMPACTS

## Total Impacts of Entire Supply Chain, 2013

<b>Type of Impact</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Jobs	128,900	31,500	60,200	220,600
Labor Income (mils \$)	4,043	1,757	2,940	8,740
Business Revenues (mils \$)	19,488	6,712	9,359	35,559

- Total are based in final demand and thus corrected for double-counting of sales.
- For example, roughly 20% of all farming and ranching jobs across the state are supported through demand from processors.

## ECONOMIC IMPACTS

Multipliers of Entire Supply Chain, 2013

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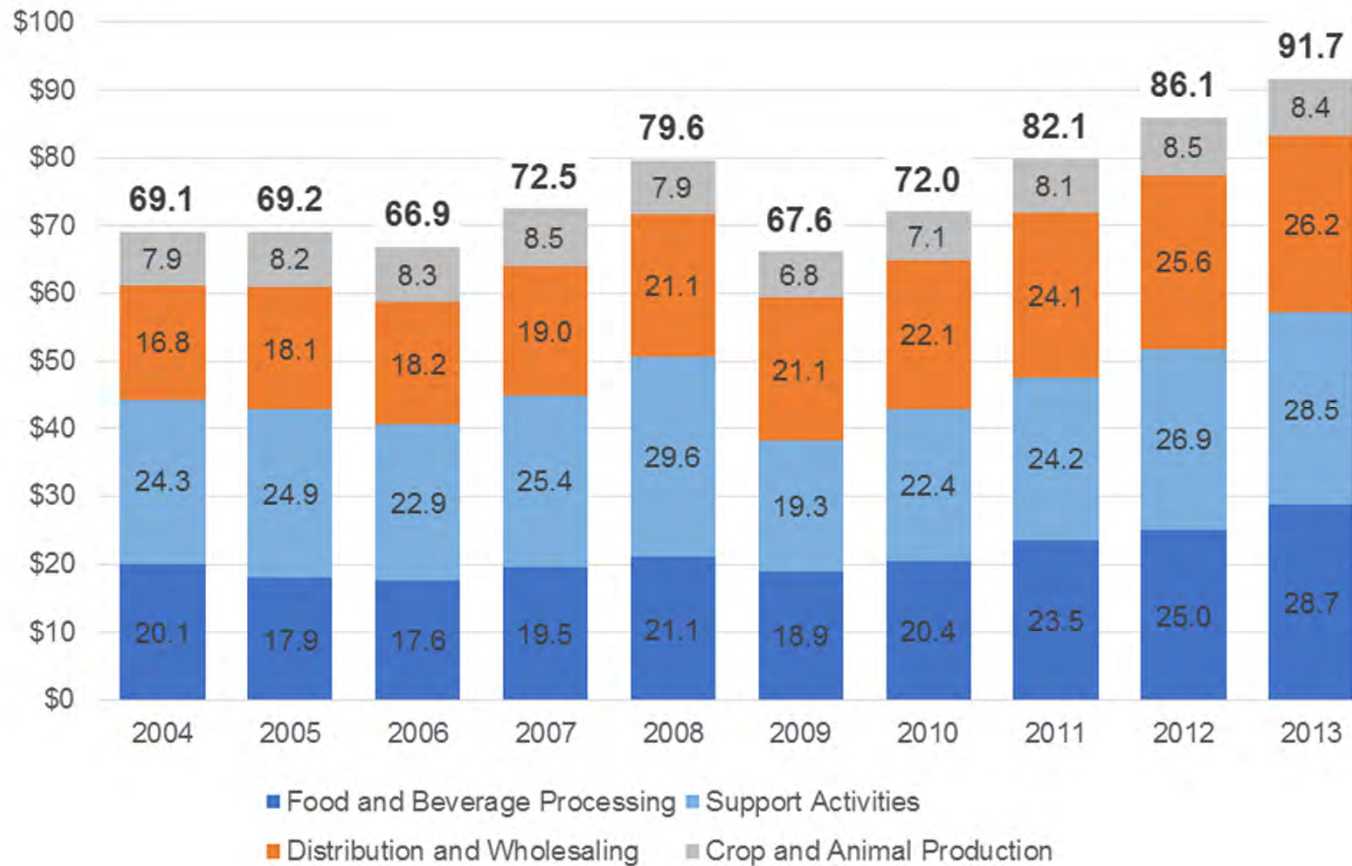
Total output per \$ final demand	\$1.82
Total jobs per direct job	1.71
Total labor income per \$ direct income	\$2.16
Total jobs per \$ mil final demand	11.32

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# FISCAL IMPACTS

## Direct State Tax Payments by Activity, 2004-2013 2013 \$

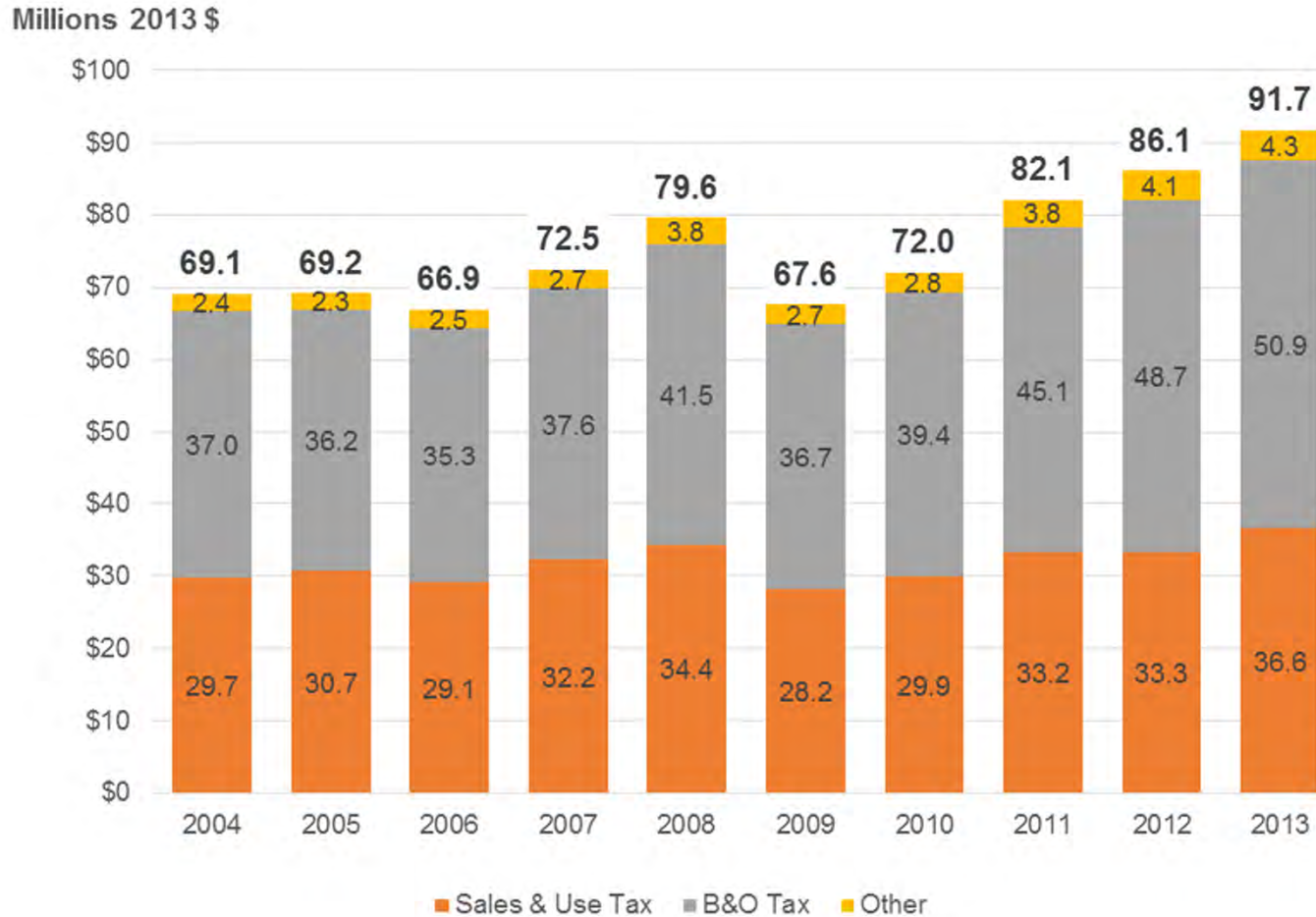
Millions 2013 \$





# FISCAL IMPACTS

## Direct State Tax Payments by Tax Type, 2004-2013 2013 \$



# FISCAL IMPACTS

Total Fiscal Impacts, including Multiplier Effects, 2013

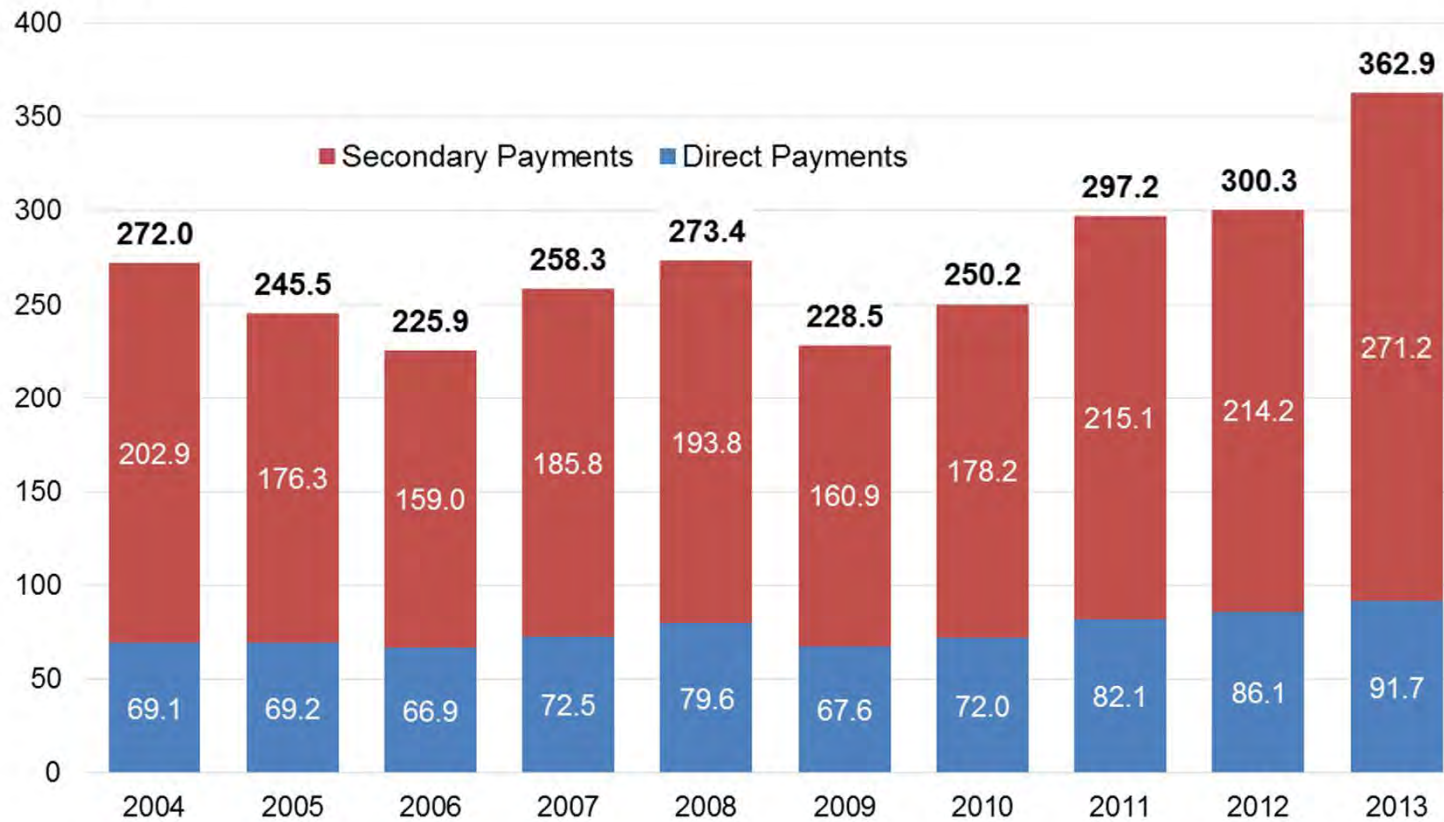
<b>Tax Type</b>	<b>Direct Secondary</b>		<b>Total</b>
	<b>Payments</b>	<b>Impacts</b>	
Sales and Use Taxes	36.6	166.2	202.7
Business & Occupation	50.9	82.2	133.2
Other	4.3	22.7	27.0
<b>Total</b>	<b>91.7</b>	<b>271.2</b>	<b>362.9</b>

- Every \$1 of direct payments is associated with an additional \$3 in payments in other industries.

# FISCAL IMPACTS

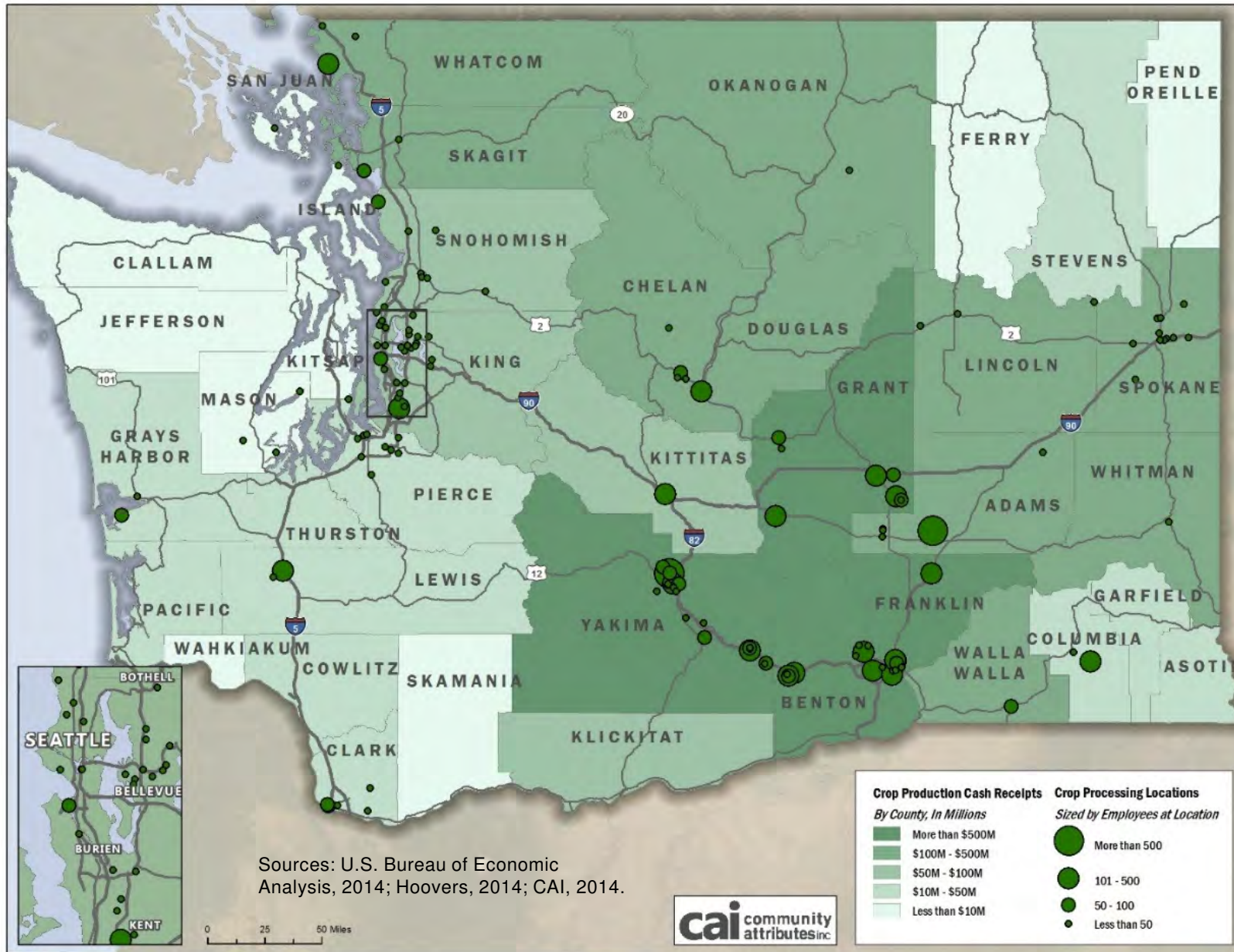
## Total Fiscal Impacts, including Multiplier Effects, 2004-2013 2013 \$

Millions 2013 \$



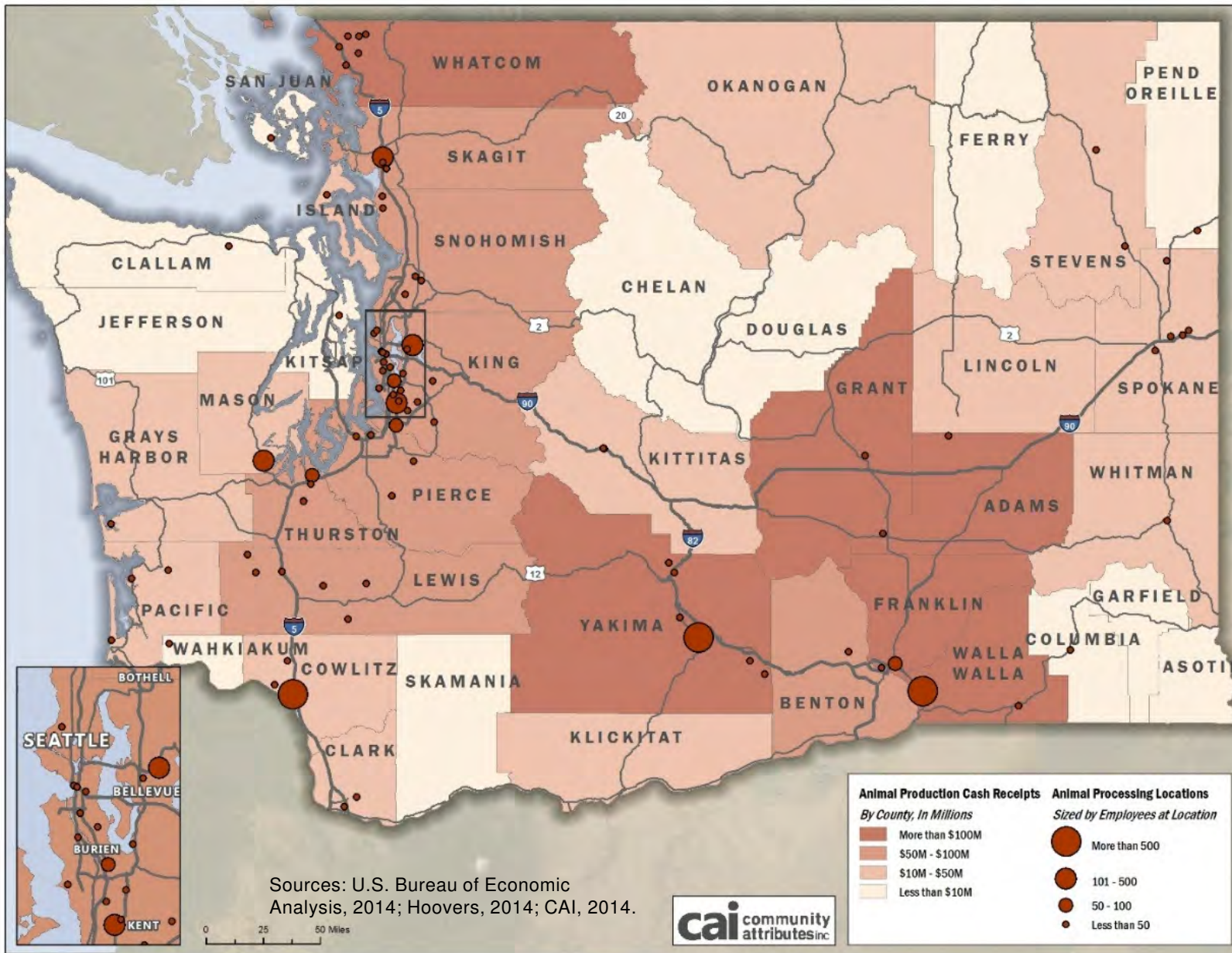
# LOCAL IMPACTS

## Crop Production Cash Receipts and Crop Processing Employment, 2012



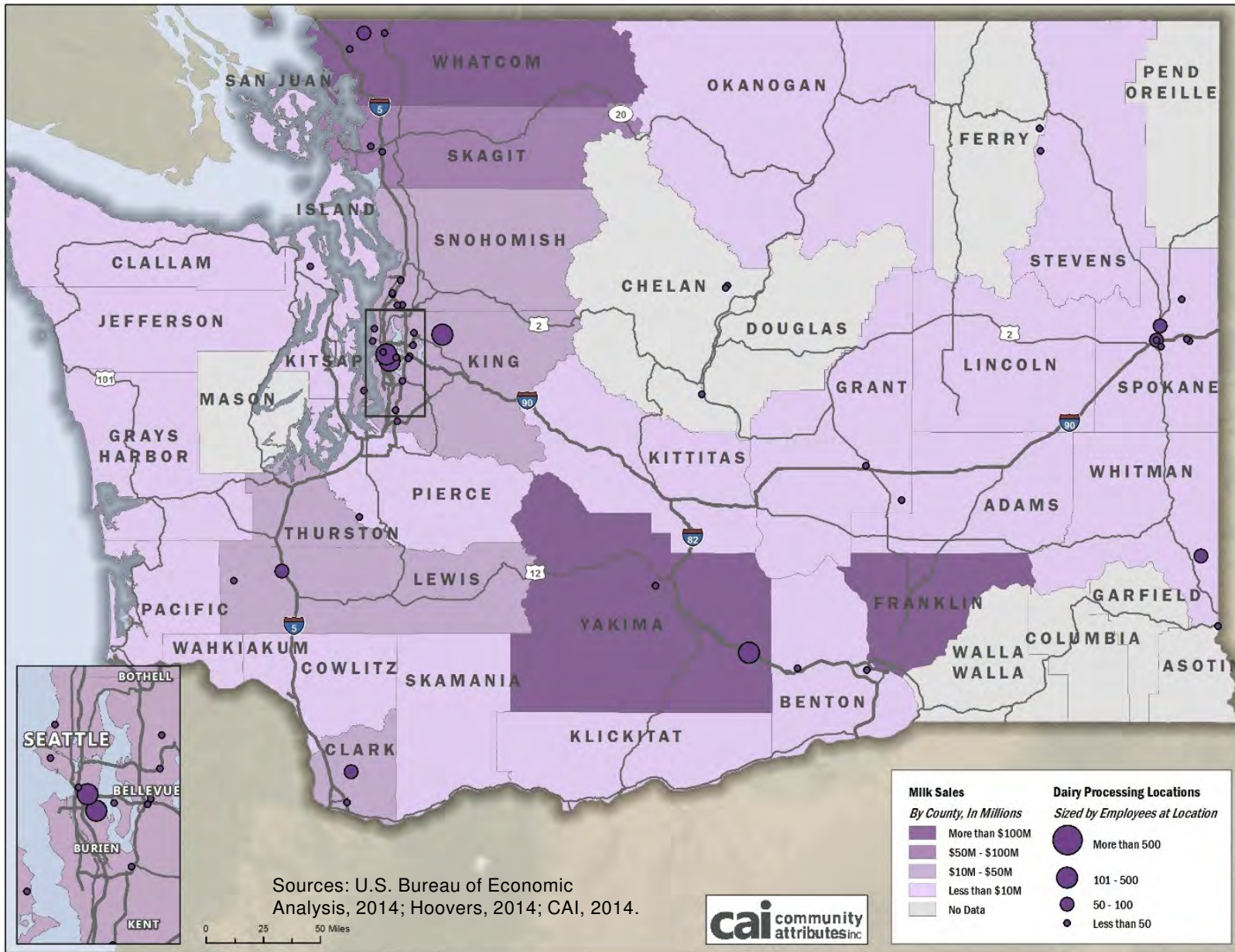
# LOCAL IMPACTS

## Animal Production Cash Receipts and Animal Processing Employment, 2012



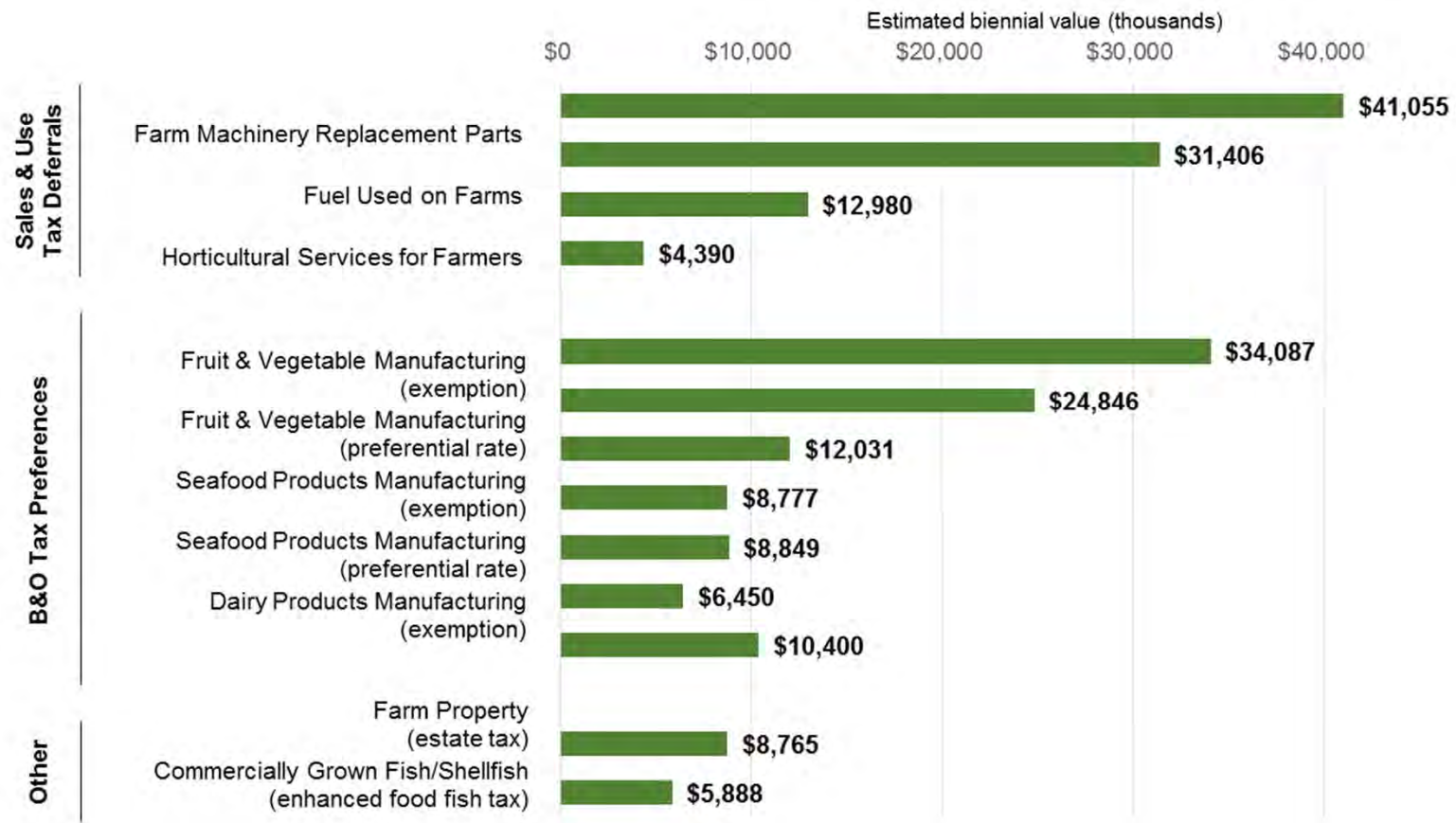
# LOCAL IMPACTS

## Milk Sales and Dairy Processing Employment, Washington State, 2012



# TAX SAVINGS

## Washington's Major Agriculture-Related Tax Incentives and Estimated Biennial Value, 2014



# TAX SAVINGS

## B&O Tax Exemption Savings for Fruit & Vegetable and Dairy Product Processors and Number of Participants

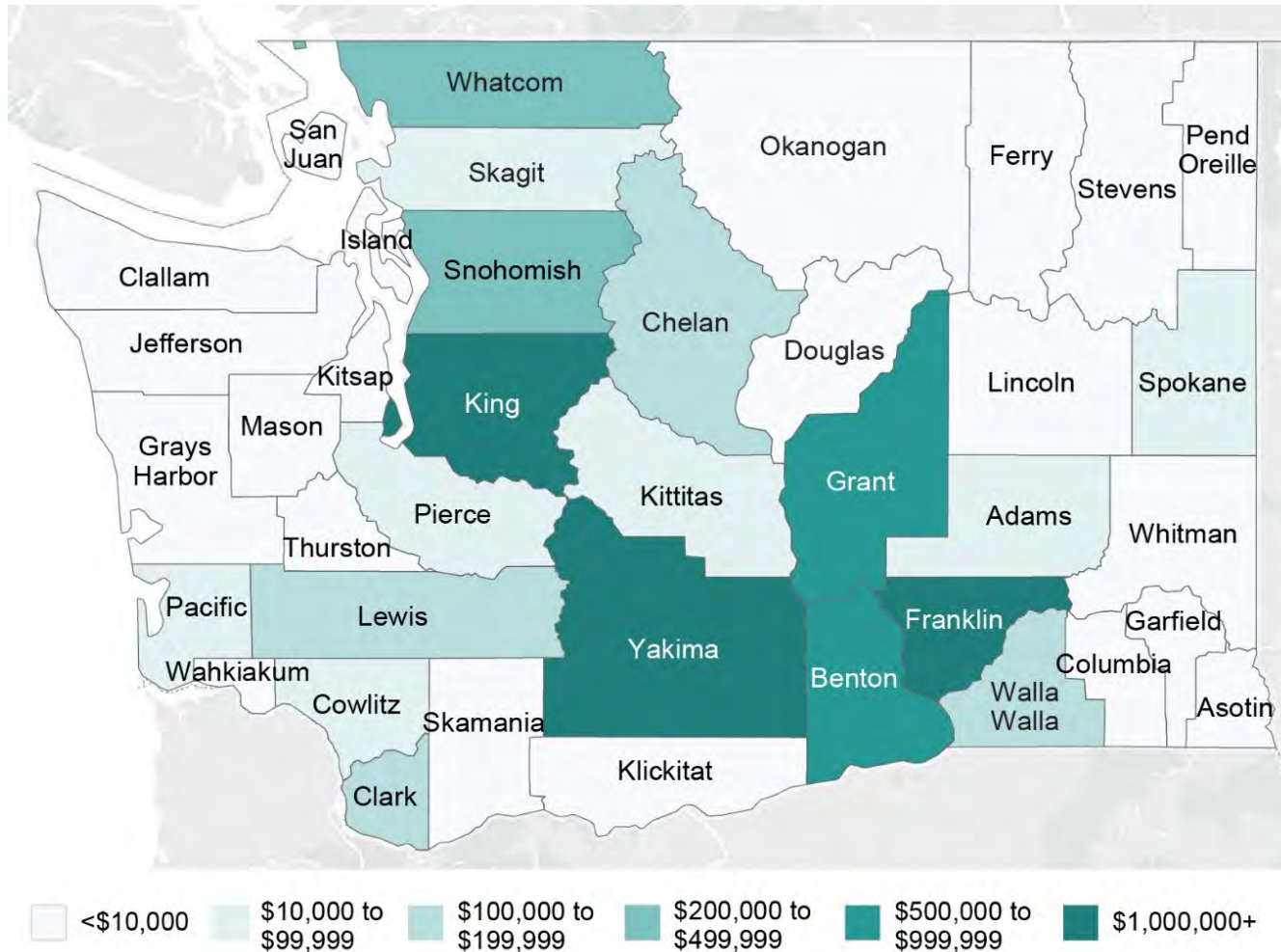
2001-2012, mils 2013 \$





# TAX SAVINGS

## Total Value of Agriculture-Related B&O Tax Exemption Savings by County, 2012



Sources: Washington State Department of Revenue, 2014; Community Attributes Inc., 2014.

# FARMING RISK AND SENSITIVITY ANALYSIS

## Wheat Ten-Year Average Tax Scenarios

*Fruitful Rim, Washington State, 2004-2013*

Share of Operating Cost	Cost per Acre	
	Operating Cost	Tax Savings
<b>Scenario 1</b>		
Farm Machinery Replacement Parts @ 5%	\$ 8.50	\$ 0.70
Fuel Used on Farms @ 15%	25.50	1.60
Fertilizer and Chemical Sprays @ 30%	51.00	3.30
<b>Sub-Total</b>	<b>85.00</b>	<b>5.60</b>
<b>Total</b>	<b>\$ 169.90</b>	
<b>Scenario 2</b>		
Farm Machinery Replacement Parts @ 10%	\$ 17.00	\$ 1.40
Fuel Used on Farms @ 10%	17.00	1.40
Fertilizer and Chemical Sprays @ 35%	59.40	4.90
<b>Sub-Total</b>	<b>93.40</b>	<b>7.70</b>
<b>Total</b>	<b>\$ 169.90</b>	
<b>Scenario 3</b>		
Farm Machinery Replacement Parts @ 15%	\$ 25.50	\$ 2.10
Fuel Used on Farms @ 30%	51.00	4.20
Fertilizer and Chemical Sprays @ 35%	59.40	4.90
<b>Sub-Total</b>	<b>135.90</b>	<b>11.20</b>
<b>Total</b>	<b>\$ 169.90</b>	

- Analysis in this section uses sources from Washington State University, University of Idaho, and USDA.
- “Fruitful Rim” and “Basin and Range” are USDA-defined agricultural regions. The majority of Eastern WA falls under the Fruitful Rim, while areas bordering Idaho fall under “Basin and Range.”

# FARMING RISK AND SENSITIVITY ANALYSIS

## Potato Ten-Year Average Tax Scenario

*Washington State, 2004-2013*

Share of Operating Cost	Cost per Acre	
	Operating Cost	Tax Savings
<b>Scenario 1</b>		
Farm Machinery Replacement Parts @ 5%	\$ 112.10	\$ 9.20
Fuel Used on Farms @ 5%	112.10	9.20
Fertilizer and Chemical Sprays @ 40%	896.70	73.50
<b>Sub-Total</b>	<b>1,120.90</b>	<b>91.90</b>
<b>Total</b>	<b>\$2,241.80</b>	
<b>Scenario 2</b>		
Farm Machinery Replacement Parts @ 2%	\$ 44.80	\$ 3.70
Fuel Used on Farms @ 5%	112.10	9.20
Fertilizer and Chemical Sprays @ 40%	896.70	73.50
<b>Sub-Total</b>	<b>1,053.60</b>	<b>86.40</b>
<b>Total</b>	<b>\$2,241.80</b>	
<b>Scenario 3</b>		
Farm Machinery Replacement Parts @ 5%	\$ 112.10	\$ 9.20
Fuel Used on Farms @ 10%	224.20	18.40
Fertilizer and Chemical Sprays @ 45%	1,008.80	82.70
<b>Sub-Total</b>	<b>1,345.10</b>	<b>110.30</b>
<b>Total</b>	<b>\$2,241.80</b>	

# FARMING RISK AND SENSITIVITY ANALYSIS

## Wheat Prices Received and Estimated Breakeven Prices, *Fruitful Rim, Washington State, 2004-2013*

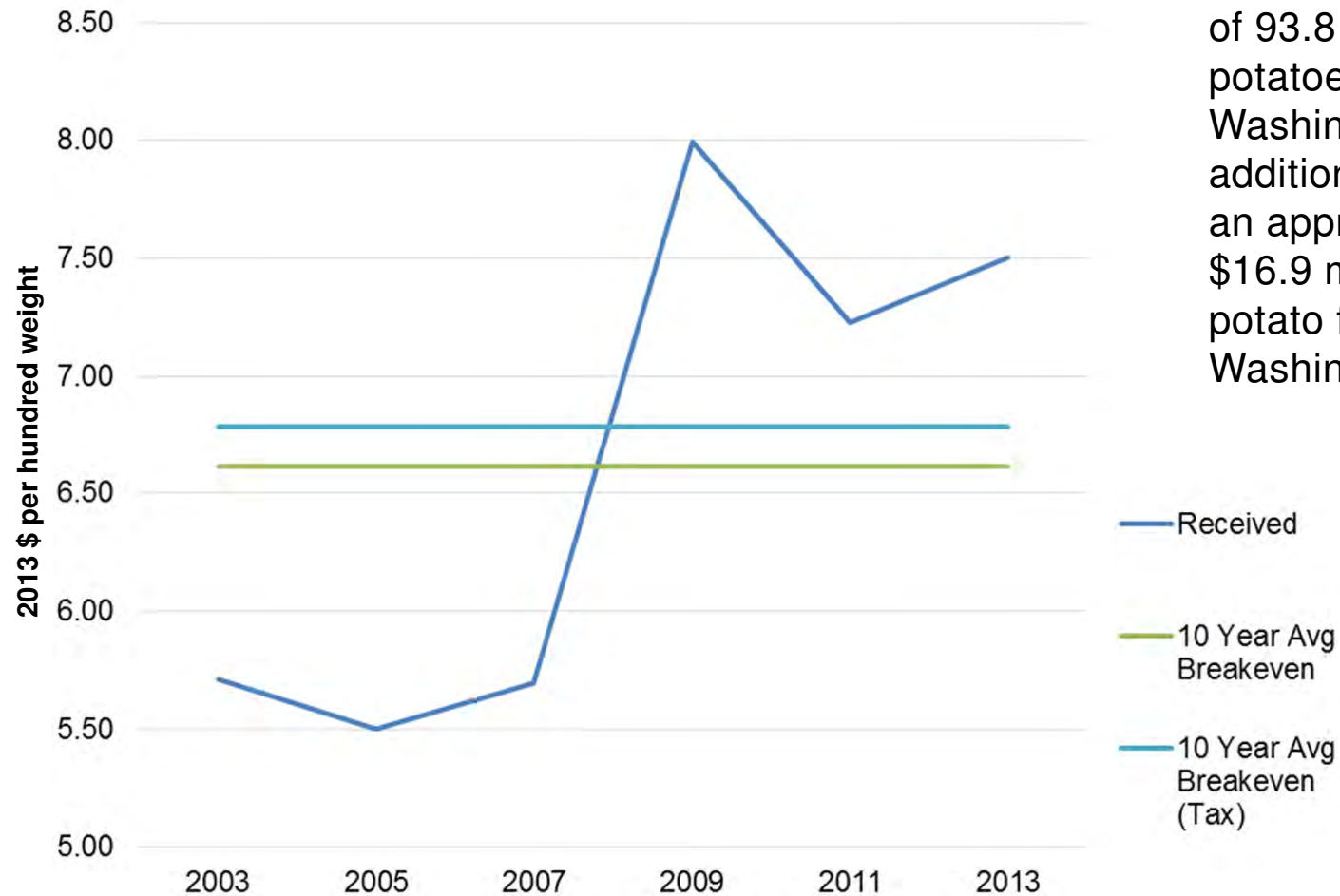


- Washington's sales and use tax exemptions help offset some of the volatility in prices.
- Without the sales and use tax exemptions wheat farmers in the Fruitful Rim enjoy, their breakeven cost over a 10-year period would on average need to be \$0.12 per bushel higher.
- Total savings of \$16.5 million per year.

— Received  
— 10 Year Avg Breakeven  
— 10 Year Avg Breakeven (Tax)

# FARMING RISK AND SENSITIVITY ANALYSIS

## Potato Prices Received and Estimated Breakeven Prices, *Washington State, 2004-2013*

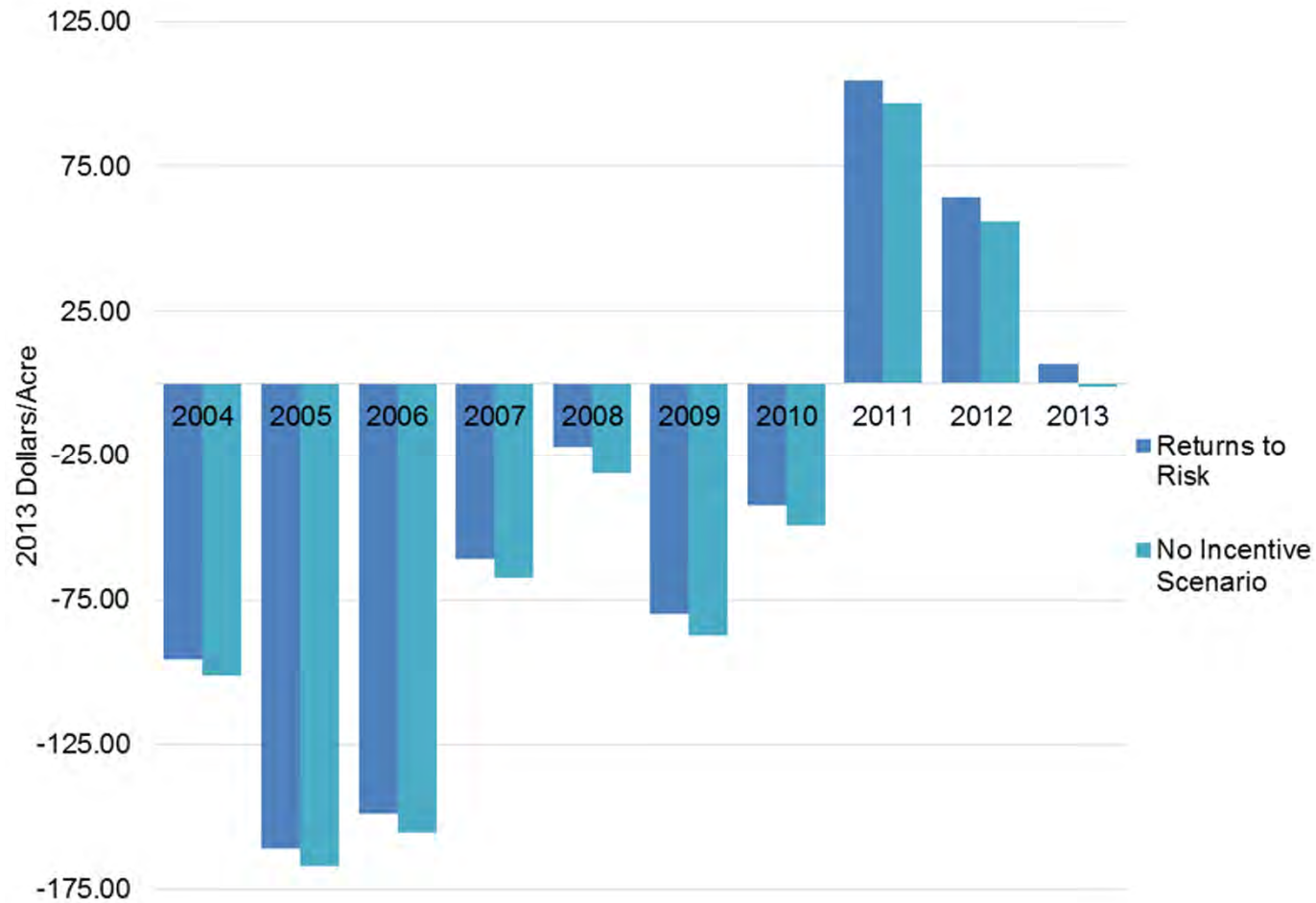


- With an average production of 93.8 million cwt of potatoes each year in Washington, the \$0.18 in additional sales required is an approximate savings of \$16.9 million per year for potato farmers in Washington.

# FARMING RISK AND SENSITIVITY ANALYSIS

## Wheat Returns to Risk

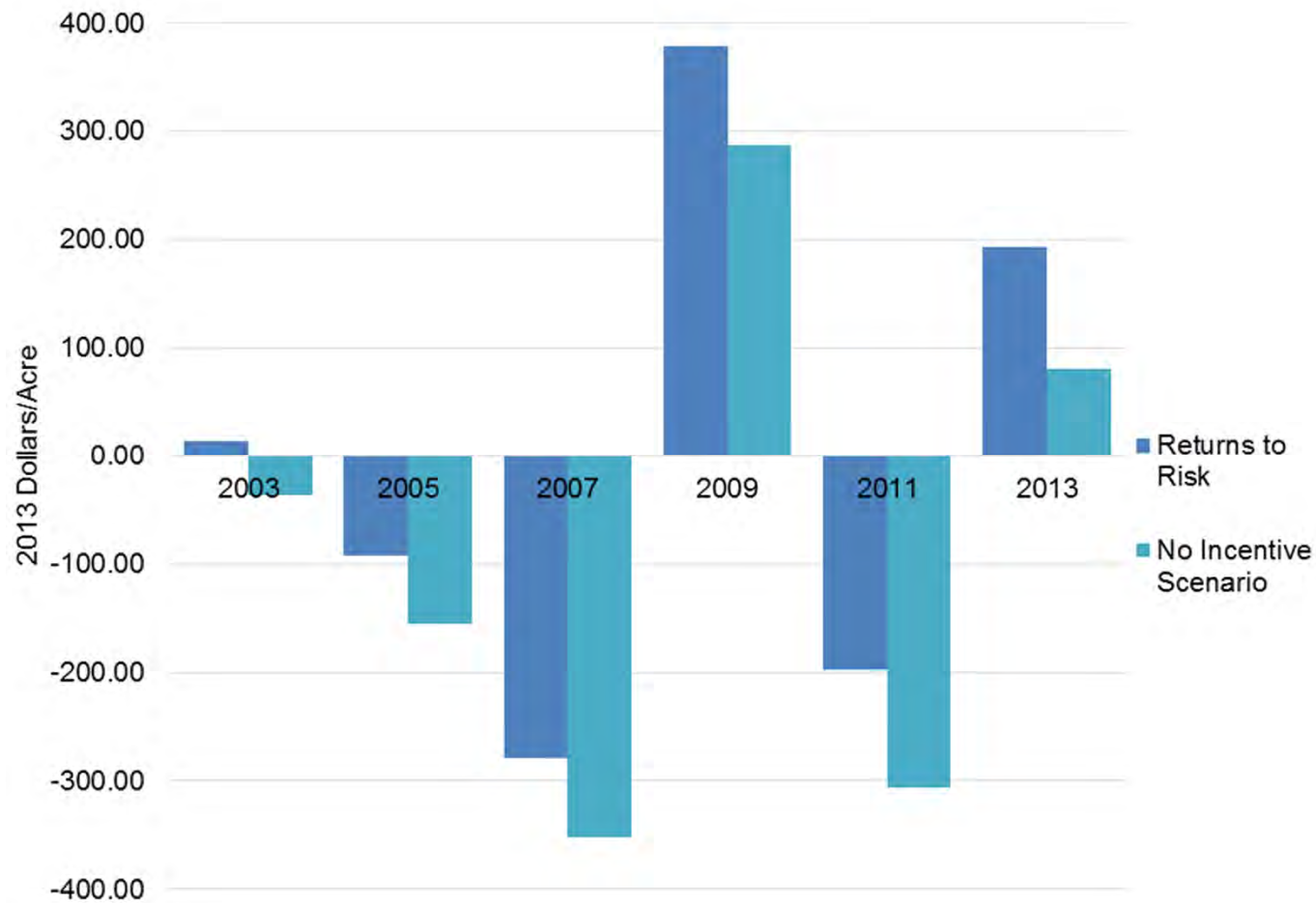
*Fruitful Rim, Washington State, 2004-2013*



# FARMING RISK AND SENSITIVITY ANALYSIS

## Potato Returns to Risk

*Washington State, 2004-2013*



# Questions and Feedback



# Appendix

## Data Terms and Limitations

- **Covered employment.** Refers to all employees working in a firm and protected by the unemployment insurance system. Covered employment includes all employment except self-employed workers, unpaid family workers, workers in certain not-for-profit organizations, and several other small (primarily seasonal) worker categories.
- **Farm Proprietor.** A farm establishment that produces, or normally would be expected to produce, at least \$1,000 worth of farm products—crops and livestock—in a typical year and does not employ additional workers (excluding the labor of non-paid family members). Many small family farms and ranches are classified as farm proprietors. Farm proprietor employment include family members working on a family farmed and business partners, and is thus a larger than farm operations.
- **Farm and Ranch Operations** estimates are collected by the National Agricultural Statistics Service, a program under the U.S. Department of Agriculture. Operations refer to the business address of an operator. For example, if a farm proprietor has farms across three land parcels, one operator is counted, not three. Farm establishments represent operations with employees on payroll, also referred as covered employment. Most farm operations in Washington are proprietorships, not business establishments.

Sources: U.S. Bureau of Labor Statistics, 2014; Community Attributes Inc., 2014.

# DATA TERMS AND CONSIDERATIONS

- **Corporate versus Family Farms**
- Legal farming entities are defined for tax purposes by cross-referencing multiple categories including whether or not a farm is a corporation; whether or not the farm is family held, a partnership, or neither; whether or the farm is institutional, research, or a part of a reservation; and whether or not the farm owner is the primary operator. Taking the colloquial phrase “family farm” and attaching it to these definitions a sensitive task, as some farms that are family held are large corporate entities where the owner is not the primary farmer. Farms of this type do not fit into the common concept of a “family farm,” but rather into the common concept of a “corporate farm.” Even though the farm is legally defined as being family held, the fact that it large enough that the owner’s immediate family could never reasonably operate it alone identifies it with the common concept of a “corporate farm.” Roughly 2% of family held, non-corporate operations fall into this category.
- For the purposes of this study, “**family farm**” will refer to farms that are family held or partnerships, including corporations, which fit into the small or medium farm size definitions in the previous section. Family held and partnership farms, both corporate and non-corporate, with sales in excess of \$1,000,000 will be considered “**corporate farms**” for the purposes of this study.
- For the purposes of this study, “**other farms**” includes the large number of corporations, family held farms, and partnerships receiving less than \$250,000 in annual sales as well as institutional, research, and reservation farms of all sizes. Institutional, research, and reservation farms account for 2.5% of all farms in the state.

Sources: USDA, 2014; Community Attributes Inc., 2014.

# KEY MEASURES

## Farms by Size

2013

Size	Sales	Number of Farms Share	
Hobby, Lifestyle, and Retirement Farms	Less than \$250,000	33,228	89.2%
Small Farms	\$250,000-\$499,999	1,286	3.5%
Medium Farms	\$500,000-\$999,999	1,149	3.1%
Large Farms	\$1,000,000 or more	1,586	4.3%
Total	All	37,249	100%

- Based on interview feedback and NASS data, the term **Hobby, Lifestyle, and Retirement Farms** refers to farms with less than \$250,000 in yearly sales. This is the lowest reported NASS tier that includes \$172,800 in yearly sales, the USDA's calculation for Limited Resource Farms.
- **Small Farms** are those with between \$250,000 and \$500,000 in yearly sales.
- **Medium Farms** have yearly sales between \$500,000 and \$1,000,000.
- **Large Farms** are those with sales in excess of \$1,000,000.

Source: U.S. Department of Agriculture, 2013; CAI, 2014.

## KEY MEASURES

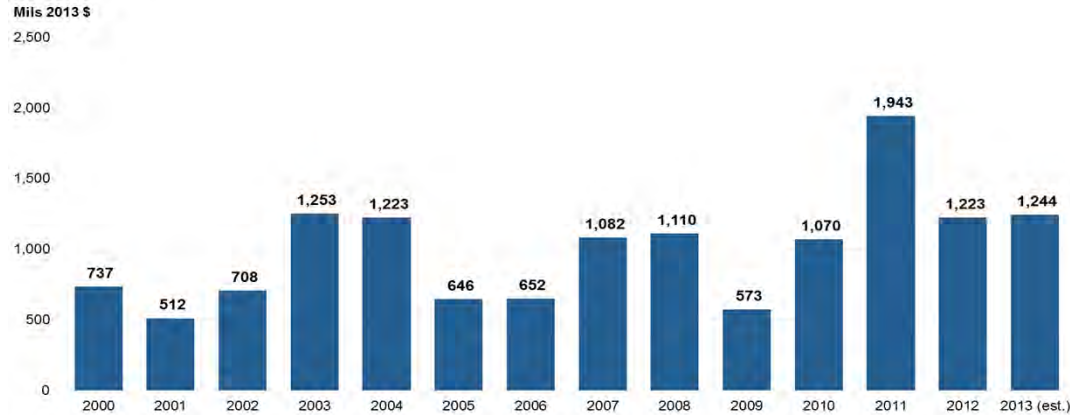
- **Family Farms** refers to single-family-owned, sole proprietorship, and partnership farms—including incorporated farms—that fit into the **Small and Medium Farm** size definitions.
- **Corporate Farms** are **Large Farms**, including proprietorships and family-owned farms, but excluding institutional, research, and reservation farms.
- **Small Farms**: Corporations, family-held farms, and partnerships in the Hobby, Lifestyle, and Retirement size category, as well as institutional, research, and reservation farms of all sizes.

### Farms by Type 2013

Type	Number of Farms	Share
Family	1,519	4.1%
Corporate	2,404	6.5%
Other	33,326	89.5%
Total	37,249	100.0%

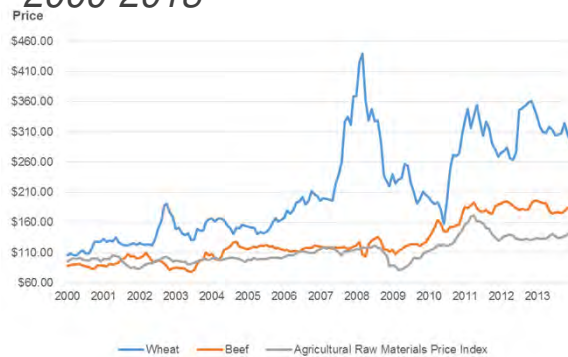
Source: U.S. Department of Agriculture, 2013; CAI, 2014.

## Key Measures (Detailed) Farm Proprietors Income, Adjusted 2000-2013



Sources: U.S. Bureau of Economic Analysis, 2014; U.S. Bureau of Labor Statistics, 2014; Community Attributes Inc., 2014.

## Agricultural Commodity Prices 2000-2013



Farm proprietor income is can be viewed as end-of-year profits—farmer interviewees indicated they rarely pay themselves a wage.

Sources: International Monetary Fund, 2014; World Bank, 2014; Community Attributes Inc., 2014.

# APPENDIX B

## Local Impacts (Detailed)

### Farm Labor and Proprietors' Gross Income by County, \$1,000s 2012 & 2004-2012 Trend

County	2012	2004 - 2012	County	2012	2004 - 2012
Grant	1,733,739		Kittitas	80,644	
Yakima	1,722,282		Clark	65,070	
Benton	806,657		Columbia	52,265	
Franklin	684,998		Garfield	41,517	
Walla Walla	508,804		Grays Harbor	39,287	
Adams	493,020		Pacific	38,456	
Whatcom	439,641		Mason	32,187	
Whitman	352,159		Cowlitz	30,269	
Skagit	328,796		Stevens	30,020	
Chelan	322,783		Asotin	18,076	
Okanogan	314,894		Island	17,482	
Douglas	281,705		Clallam	14,010	
Spokane	161,859		Jefferson	8,330	
Lincoln	155,156		Kitsap	7,923	
Snohomish	148,303		San Juan	4,618	
King	143,673		Wahkiakum	3,958	
Thurston	128,254		Ferry	3,695	
Lewis	122,352		Pend Oreille	3,681	
Pierce	93,877		Skamania	3,035	
Klickitat	85,376		<b>Total, Washington</b>	<b>9,522,851</b>	

Source: Bureau of Economic Analysis, 2014.

# COMPETITIVENESS ANALYSIS UPDATES

Washington's largest food processors that operate facilities outside the state:

- **Darigold**, which received 88% of the total value of dairy processing B&O exemptions in 2013, operates two of its four Class I plants outside of Washington State, as well as two of its four dried milk production plants.
- **Lamb Weston ConAgra**, which received 18% of the total value of fruit and vegetable processing B&O tax exemptions in 2013, operates several plants in the Midwest and California.
- **Del Monte Foods** is headquartered in San Francisco and operates 11 food processing facilities and 3 distribution centers around the country. Del Monte also operates production facilities in Venezuela and Mexico.



# TAX SAVINGS

## Top Tax Preference Beneficiaries, 2012

### A. Dairy Product B&O Tax Exemption

Rank	Business Name	Amount	Share	Out of State Sales
1	Darigold, Inc.	\$1,048,938	88%	\$216,722,727
2	Safeway, Inc. (other grocery)	\$36,226	3%	\$7,484,624
3	Safeway, Inc. (ice cream plant)	\$31,387	3%	\$6,484,948
4	Andersen Dairy, Inc.	\$24,493	2%	\$5,060,514
5	ConAgra Foods Lamb Weston, Inc.	\$15,398	1%	\$3,181,500
6	Country Morning Farms, Inc.	\$12,049	1%	\$2,489,452
7	Appel Farms LLC	\$11,585	1%	\$2,393,634
8	Smith Brothers Farms, Inc.	\$6,286	1%	\$1,298,791
9	Grande Cheese Company	\$1,114	<1%	\$230,178
10	Rocky Run Goat Dairy LLC	\$117	<1%	\$24,248

### B. Fruit & Vegetable Processing B&O Tax Exemption

Rank	Business Name	Amount	Share	Out of State Sales
1	ConAgra Foods Lamb Weston, Inc.	\$923,396	18%	\$190,784,279
2	Ste. Michelle Wine Estates, Ltd.	\$588,213	11%	\$121,531,636
3	Tree Top, Inc.	\$297,597	6%	\$61,486,919
4	Bybee Foods, LLC	\$290,886	6%	\$60,100,382
5	Del Monte Corporation	\$218,340	4%	\$45,111,630
6	Oregon Potato Company	\$173,512	3%	\$35,849,587
7	Stockpot, Inc.	\$164,969	3%	\$34,084,504
8	National Frozen Foods Corporation	\$162,074	3%	\$33,486,364
9	Twin City Foods, Inc.	\$153,078	3%	\$31,627,669
10	Lamb Weston BSW, LLC	\$132,750	3%	\$27,427,746