A ROAD MAP FOR THE OREGON FOOD AND BEVERAGE INDUSTRY

JULY 29, 2016

Prepared for:

The Oregon Business Development Department (Business Oregon)

and

The Food and Beverage Industry Leadership Council
The Northwest Food Processors Association
The Oregon Business Council
The Oregon Business Association
The Oregon Department of Agriculture

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INTRODUCTION

PURPOSE OF THE ROAD MAP

The Food and Beverage Industry Road Map is a strategic plan identifying key action steps and investments to drive expansion of the food and beverage industry in Oregon over the next 10 years. The report identifies key issue areas and recommends a framework of initiatives to address critical barriers and constraints to industry expansion, as well as to help accelerate growth where significant market opportunities exist. The report includes both private sector and public sector initiatives and especially focuses on critical areas of collaboration between the industry and state and local governmental and educational agencies. The intent of the plan is to help move the entire food and beverage industry forward, but particular emphasis is laid on subsectors where substantial growth potential exists. These components of the food and beverage industry in Oregon with especially high growth potential include:

- Fruit and Vegetable Products
- Baked Goods and Grains
- Dairy Products
- Beverages
- Snacks, Flavorings, and Other Food Ingredients

While several of these subsectors focus on direct-to-consumer products, a substantial portion of the Oregon food and beverage industry produces intermediate products and ingredients used in making retail food products. Despite differences in market orientation among the companies within the industry, there are many commonalities in the issues they face. This Road Map is organized around a number of common issues that cut across most if not all of the food and beverage subsectors:

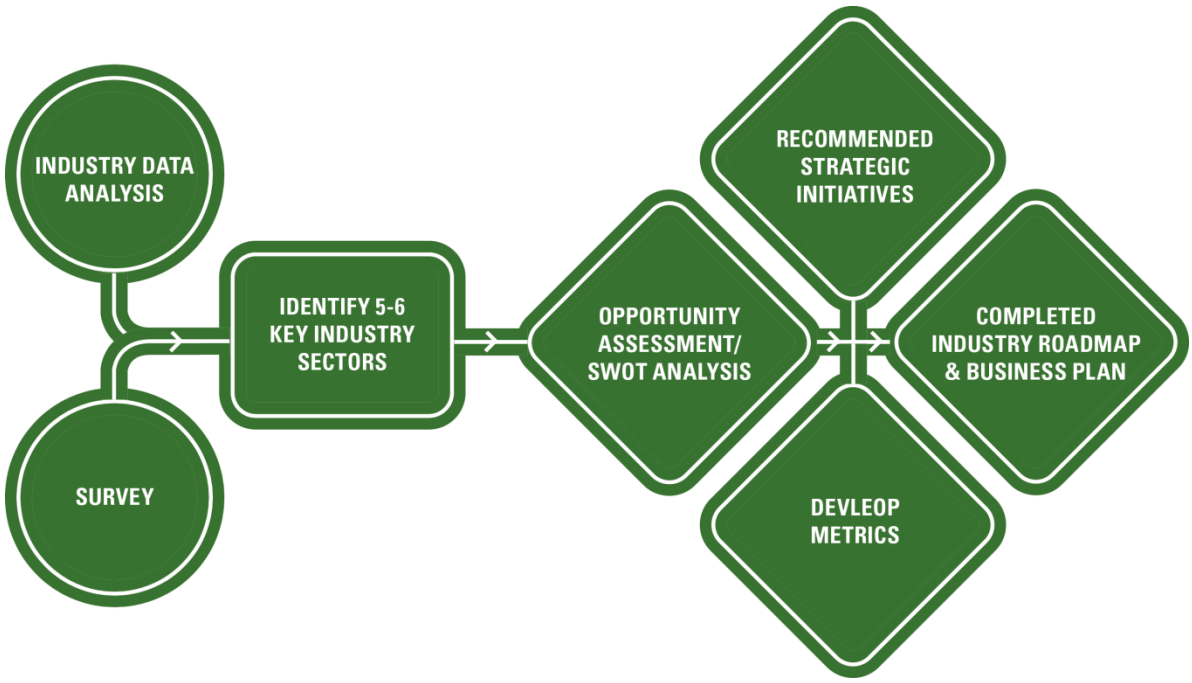
- Leadership and Coordination
- Research and Development / Technical Assistance
- Workforce Development
- Distribution Infrastructure
- Market Development
- Government Regulation

STUDY PROCESS

The Food and Beverage Road Map is part of a larger effort by Business Oregon to organize its work under a common strategy called "Grow Our Own," based on the belief that quality and sustainable job growth starts by supporting existing Oregon companies to stay and grow right here at home. Central to the Grow Our Own approach is working in partnership with key industry stakeholders that drive Oregon's economy both today and into the future. In addition to Business Oregon, stakeholders involved in this project are leaders of the Oregon Food and Beverage Leadership Council (OFBLC) in partnership with the Oregon Business Council (OBC), the Oregon Business Association (OBA), the Northwest Food Processors Association (NWFPA) and the Oregon Department of Agriculture (ODA).

Oregon Food and Beverage Leadership Council

The OFBLC, comprised of executives from Oregon's leading value-added food and beverage companies, was formed in 2014. The purpose of OFBLC is to help Oregon realize the state's full potential in the food and beverage industry by identifying high-impact opportunities to drive economic growth by working closely with the governor and state legislature, along with existing agencies and associations, to secure funding and support work and initiatives of these existing entities. The OFBLC, which is made up entirely of volunteers, is staffed jointly by OBA, OBC, and the NWFPA.



Development of the Road Map included extensive outreach to companies in the industry as well as business association experts and local and regional economic development officials throughout the state. The outreach included personal interviews, an online survey, and regional and industry-specific focus groups. In addition, the Oregon Employment Department provided data, Business Oregon provided analysis, and the consulting team conducted additional data analysis to define key industry growth trends and indicators.

The consultant team conducted about 30 interviews with firms and industry experts attending the Northwest Food Processors Expo in January, 2016. At the same time, the consultant reviewed the survey questionnaire with members of the OFBLC.

The survey was launched in February, 2016 with invitations sent to more than 500 separate firms, as well as notices published in the newsletters of the Oregon Wine Board and the Oregon Brewery Guild. Moore Information obtained 102 completed surveys: 87 online and 15 through telephone contact. All of the major food and beverage industry subsectors were represented in the survey responses (see Appendix A for survey details).

With the assistance of Business Oregon, the Oregon Department of Agriculture (ODA), Northwest Food processors and other industry representatives, the consultant team conducted 13 meetings of regional economic development entities around the state. The team also conducted focus group discussions with representatives of the major subsectors within the food and beverage industry, including fruit and vegetable processors, snacks/ingredients, baked goods/grains, wineries, breweries, distillers, dairy companies, and a mixed group of NWFPA member companies.

INDUSTRY OVERVIEW

STATISTICAL SNAPSHOT

The Oregon food and beverage manufacturing industry is estimated to comprise 964 business establishments and 31,920 jobs as of 2014, the most recent year for which annual employment statistics are available. In addition to the food processors and beverage manufacturers counted in these figures, there are also 164 establishments with more than 4,200 jobs in related sectors including food products distribution, food machinery manufacturing and glass container manufacturing.

The largest industry subsector in terms of employment is fruit and vegetable preserving, with 9,938 jobs. This subsector is 4.5 times more concentrated in Oregon than it is nationwide. Other subsectors that are at least two times more concentrated in Oregon than the national average include seafood, food machinery, and beverages.

The fruit and vegetable subsector grew by 9.5 percent between 2004 and 2014, compared to 28.3 percent for the industry as a whole. The subsector "other food manufacturing", which includes flavorings, extract ingredients, snacks, coffee, and tea, grew by 93.2 percent, while beverages, including beer, wine, and spirits, grew by 91.2 percent.

The Oregon food and beverage manufacturing industry is estimated to have had export sales of $717 million in 2014, representing growth of 155 percent since 2004. Export sales volume is about 4.4 percent of total industry sales. The fruit and vegetable processing subsector led all others with $330.7 million in exports, nearly a 200 percent increase over 2004. Dairy products and beverages had even higher growth rates, at 745 percent and 651 percent, respectively. "Other" food manufacturing ranked second in export volume with $96.4 million in overseas sales, for a growth rate of 142 percent.

Total sales for the industry in 2014 are estimated at $16.4 billion, an increase of 58.2 percent since 2003 in real dollar terms. It also creates significant economic multiplier effects for the Oregon economy, supporting 6.1 percent of state industry output based on Oregon State University estimates. With the multiplier effects, the 36,000 direct jobs in food manufacturing and distribution increase to support more than 80,000 jobs statewide. Overall, agriculture, food and fiber manufacturing and distribution support more than 13 percent of the state economy.

DISCUSSION OF INDUSTRY TRENDS

Table 1 shows the number of food and beverage businesses, estimated employment, and wages by industry subsector. Fruit and vegetable processing is the largest employment sector with more than a quarter of all jobs in the industry (9,938 jobs). Commercial baking is the next largest subsector with about 5,400 jobs, followed by the wine, beer, and spirits subsector with 4,900 jobs.

The importance of food and beverage industries to the Oregon economy is reflected by measures of concentration (Location Quotients) shown in Figure 1. Industries with a location quotient of more than 1.0 are more highly concentrated in Oregon than in the U.S. as a whole. These high-concentration industries typically provide much of the wealth flowing into the Oregon economy from outside its borders, via U.S. intrastate commerce and foreign trade.

TABLE 1 EMPLOYMENT AND WAGE TRENDS, FOOD AND BEVERAGE INDUSTRY, 2004-2014							
NAICS	INDUSTRY	ESTABLISH-MENTS	EMPLOY-MENT	WAGES	AVERAGE WAGE	EMPLOYMENT GROWTH 2004-14	AVG WAGE GROWTH (NOMINAL) 2004-14
	Food & Beverages	**1,239**	**36,148[1]**	**$1,350,362,431[1]**	**$37,357[1]**	**28.3%[1]**	**22.3%[1]**
	Food	**858**	**31,099[1]**	**$1,177,768,854[1]**	**$37,872[1]**	**21.8%[1]**	**24.5%[1]**
311	Food Manufacturing	696	27,020	$995,708,956	$36,850	22.6%	22.4%
3111	Animal Food Manufacturing	20	248	$11,559,826	$46,691	-7.8%	11.4%
3112	Grain & Oilseed Milling	13	830	$47,249,611	$56,910	30.1%	52.2%
3113	Sugar & Confectionery Product Manufacturing	59	720	$18,857,905	$26,192	1.8%	10.5%
3114	Fruit & Vegetable Preserving & Specialty	108	9,938	$344,193,224	$34,633	9.5%	27.4%
3115	Dairy product Manufacturing	38	2,618	$130,585,398	$49,880	22.3%	27.8%
3116	Animal Slaughtering & Processing	64	1,659	$58,782,390	$35,429	-14.1%	21.4%
3117	Seafood Product Preparation & Packaging	23	1,185	$34,826,178	$29,383	19.1%	35.9%
3118	Bakeries & Tortilla Manufacturing	239	5,399	$192,001,864	$35,561	35.0%	14.6%
3119	Other Food Manufacturing	132	4,423	$157,652,560	$35,648	93.2%	2.4%
333241	Food Product Machinery Manufacturing	16	493[1]	$25,142,864[1]	$51,000[1]	14.7%[1]	26.1%[1]
42443	Dairy Product Merchant Wholesalers	26	389[1]	$16,868,918[1]	$43,365[1]	17.5%[1]	36.0%[1]
42446	Fish & Seafood Merchant Wholesalers	25	488	$27,296,782	$55,946	40.6%	89.1%
42447	Meat & Meat Product Merchant Wholesalers	33	473	$20,509,386	$43,345	27.8%	7.2%
42448	Fruit & Vegetable Merchant Wholesalers	62	2,236	$92,241,948	$41,250	10.5%	42.2%
	Beverages	**381**	**5,049[1]**	**$172,593,578[1]**	**$34,185[1]**	**92.3%[1]**	**7.7%[1]**
3121	Beverage Manufacturing	379	4,900[1]	$164,222,074[1]	$33,515[1]	91.2%[1]	7.2%[1]
327213	Glass Container Manufacturing	2	149[1]	$8,371,504[1]	$56,260[1]	137.6%[1]	11.1%[1]

[1]Employment or wage statistic not available from 2014 BLS QCEW. Actual statistic is confidential. Figures represent estimates by Business Oregon based on one or a combination of the following: 1) percent of nondisclosable employment and wages at that NAICS level, based on distribution of establishments with nondisclosable employment and wages, 2) published employment and wage statistics in Oregon Employment Department's QCEW, 3) past employment and wage data from BLS and/or OED, 4) employment and/or wage information from published articles.

[2]NAICS 5511 employment and wages are separated into two groups: 1) employment and wages of 10 firms recognized by Business Oregon as part of the Apparel & Outdoor Gear industry group are included in Apparel & Footwear within Apparel & Outdoor Gear, and 2) remainder of employment and wages in NAICS 5511 are included in Company Management within Business Services.

Fruit and vegetable processing is 4.5 times more concentrated in Oregon than in the U.S. at large. Other highly concentrated industry subsectors in Oregon include seafood, bakeries, other food manufacturing, food product machinery, and beverages. Some of these industries are particularly important for the rural economy in Oregon, including meat processing, seafood (Rural LQ of 92.4 – not shown in the chart), food product machinery, and beverages. Seafood is especially concentrated in rural areas with an LQ of 92.4, which would dwarf the other industries if shown in the chart.

Figure 2 summarizes data from Table 1 showing employment growth between 2004 and 2014. The food and beverage industry as a whole grew in employment by 28.3 percent during this period. Among the individual subsectors, glass manufacturing has grown rapidly but remains a small industry, with only two establishments and 149 jobs. Its growth is tied to growth in the beverage industry, which has the third highest overall growth rate of 91.2 percent.

"Other" food processing is actually Oregon's fastest-growing food manufacturing sector. This sector includes coffee and tea, flavoring syrups and concentrates, sauces, spices, and other ingredients and snacks not included in bakeries and dairy.

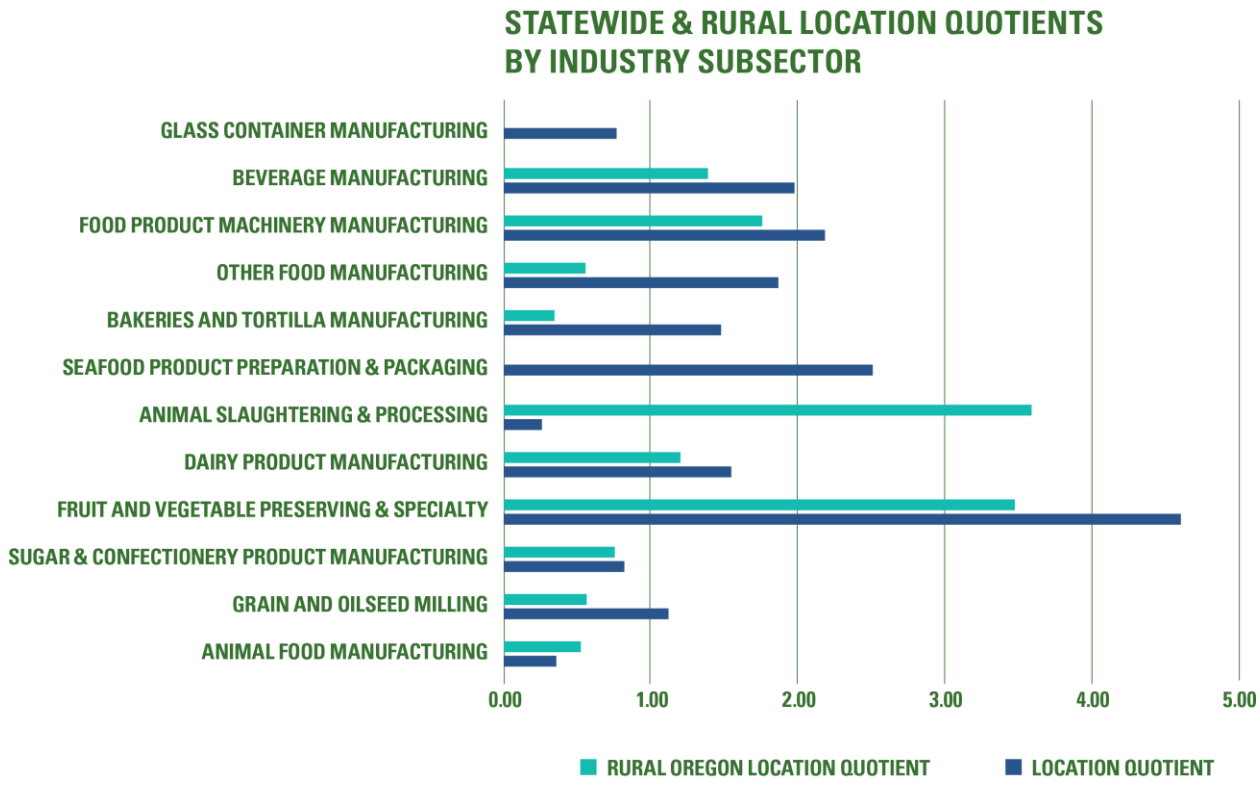
Bakeries increased employment by 35 percent during this 2004–2014 period, and grain and oilseed milling jobs increased by 30 percent. Dairy products have had a sound employment growth of 22.3 percent, while seafood, a relatively small employment sector, grew by 19.1 percent during this period. The largest employment sector, fruit and vegetable processing, grew by 9.5 percent.

Sugar and confectionary products showed a very minimal employment growth of 1.8 percent, while meat products declined in employment by 14.1 percent. This may be a reflection of declining consumer demand for certain types of meat products.

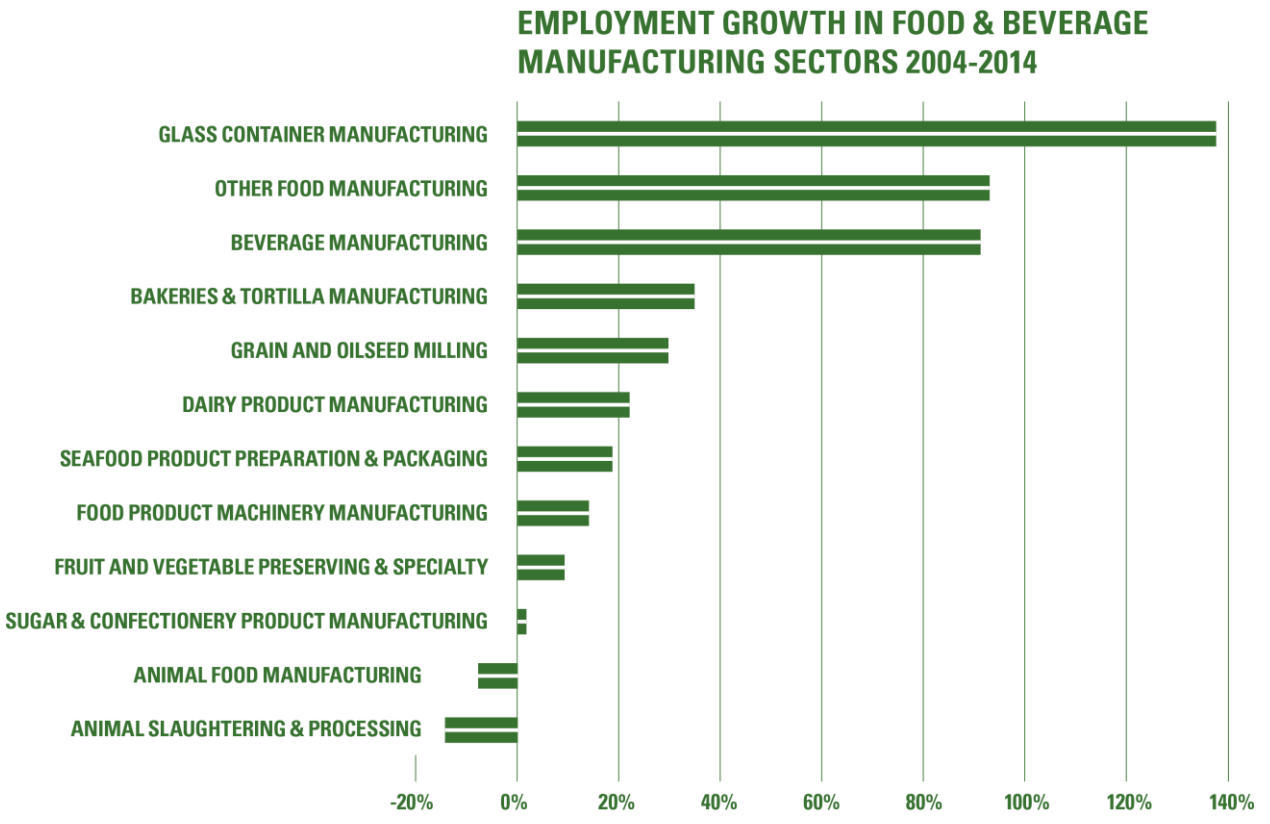
As shown in Table 2, the food and beverage industry is estimated to have had export sales of $717 million in 2014, reflecting an increase of 155 percent since 2004. Based on industry output estimates discussed further below, this export sales volume represents about 4.4 percent of total industry sales. Fruit and vegetable processing led all other subsectors with $330.7 million in exports, nearly a 200 percent increase since 2004 (Figure 3). Dairy products and beverages had even higher growth rates, at 745 percent and 651 percent, respectively (Figure 4). "Other" food manufacturing ranked second in export volume with $96.4 million in overseas sales, for a growth rate of 142 percent.

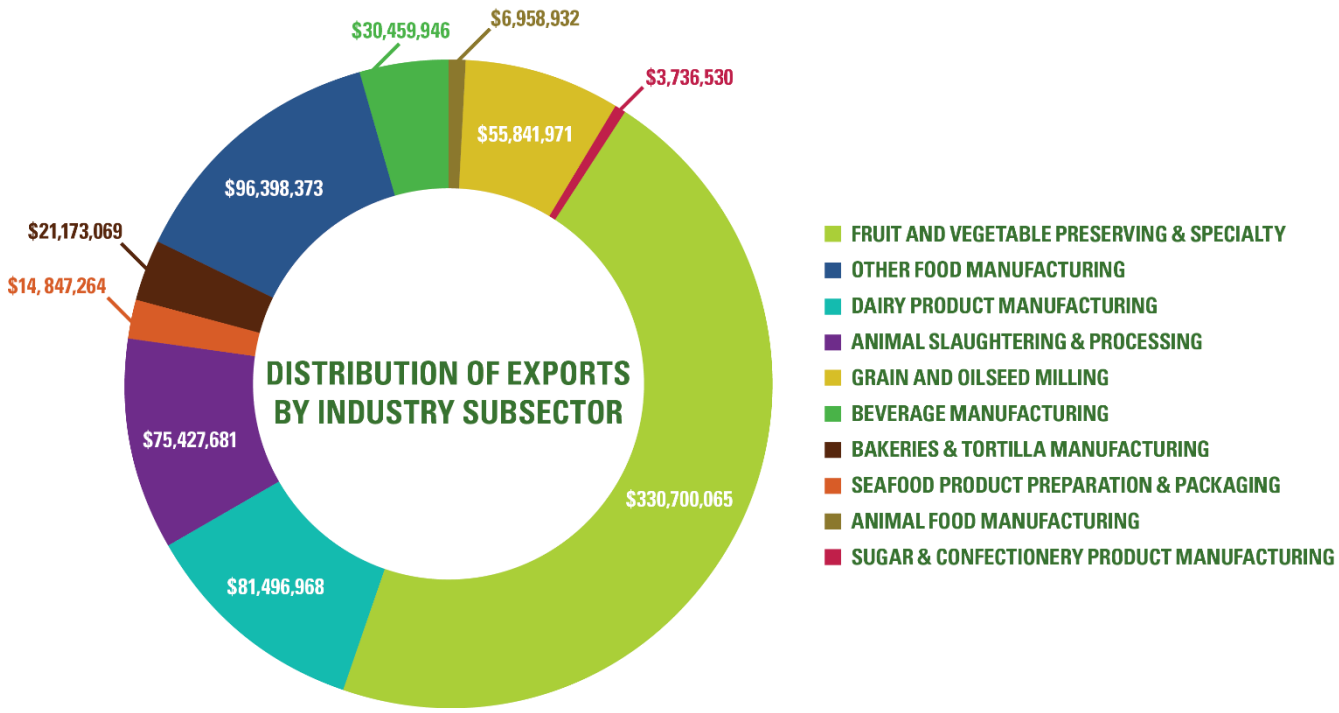
The industry has had even higher growth in sales than in employment over the past decade. As shown in Table 2, industry output in real dollar terms grew 58.2 percent between 2003 and 2014. Beverages, grain and oilseed milling, and other food manufacturing all exceeded the industry average growth rate in output. Table 2 also shows output and labor productivity estimated for the more detailed industry subsectors. The 2003 estimates are from the IMPLAN dataset that was used in ADE's earlier cluster analysis completed for the North West Food Processors Association in 2006, escalated to 2014 dollars.[1] Industry subsectors with exceptionally high output growth rates include frozen specialty food manufacturing, commercial bakeries, flavoring syrup and concentrates, and breweries.

[1] Applied Development Economics and Advanced Research Technologies, *Northwest Food Processing Cluster Assessment and Road Map*, 2006. The NWFPA study estimated the industry input based on a combination of IMPLAN worker productivity data and employment data. The figures cited in this report come directly from the IMPLAN industry output totals. IMPLAN is the name of the input-output model published by the Minnesota Implan Group.



Note: The rural LQ for seafood is 92.4 and is not shown in Figure A-1 above.




DISTRIBUTION OF EXPORTS BY INDUSTRY SUBSECTOR
$330,700,065
$81,496,968
$75,427,681
$14, 847,264
$21,173,069
$96,398,373
$30,459,946
$6,958,932
$55,841,971
$3,736,530
FRUIT AND VEGETABLE PRESERVING & SPECIALTY
OTHER FOOD MANUFACTURING
DAIRY PRODUCT MANUFACTURING
ANIMAL SLAUGHTERING & PROCESSING
GRAIN AND OILSEED MILLING
BEVERAGE MANUFACTURING
BAKERIES & TORTILLA MANUFACTURING
SEAFOOD PRODUCT PREPARATION & PACKAGING
ANIMAL FOOD MANUFACTURING
SUGAR & CONFECTIONERY PRODUCT MANUFACTURING

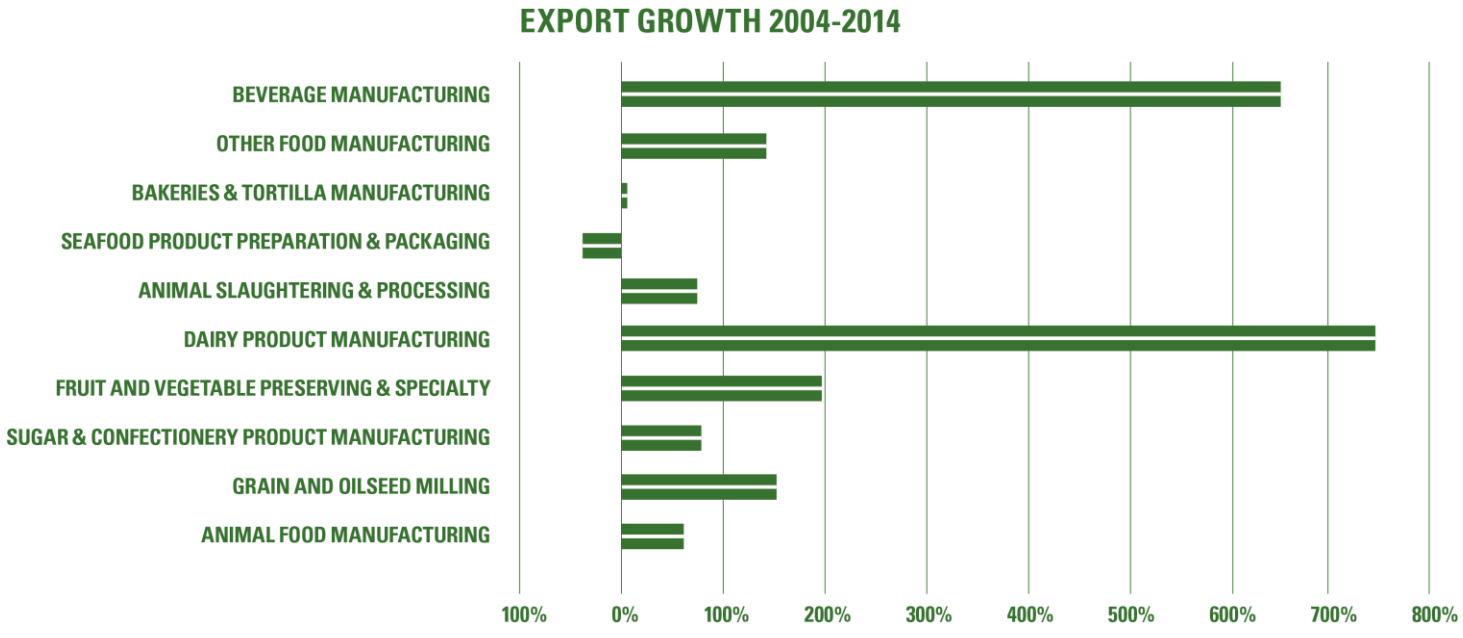

EXPORT GROWTH 2004-2014
BEVERAGE MANUFACTURING
OTHER FOOD MANUFACTURING
BAKERIES & TORTILLA MANUFACTURING
SEAFOOD PRODUCT PREPARATION & PACKAGING
ANIMAL SLAUGHTERING & PROCESSING
DAIRY PRODUCT MANUFACTURING
FRUIT AND VEGETABLE PRESERVING & SPECIALTY
SUGAR & CONFECTIONERY PRODUCT MANUFACTURING
GRAIN AND OILSEED MILLING
ANIMAL FOOD MANUFACTURING
100%
0%
100%
200%
300%
400%
500%
600%
700%
800%

TABLE 2 INDUSTRY OUTPUT TRENDS, 2003-2014							
NAICS	DESCRIPTION	2003 INDUSTRY OUTPUT ($2014)	2003 PRODUCT-IVITY ($2014)	2014 INDUSTRY OUTPUT	2014 AVERAGE PRODUCT-IVITY	2003 TO 2014 OUTPUT CHANGE	2003 TO 2014 PERCENT CHANGE
311111	Dog & Cat Food Manufacturing	$7,758,114	$862,013	$58,642,160	$1,153,966	$50,884,046	655.9%
311119	Other Animal Food Manufacturing	$266,456,875	$797,775	$368,997,984	$1,360,270	$149,609,839	56.1%
3111	**Animal Food Manufacturing**	**$274,214,989**		**$427,640,144**		**$200,493,884**	**73.1%**
311211	Flour Milling	$202,952,452	$692,670	$742,991,872	$1,536,730	$540,039,420	266.1%
311213	Malt Manufacturing	$0	$0	$0	n/a	$0	n/a
311221	Wet Corn Milling	$6,714,661	$1,119,110	$0	n/a	-$6,714,661	-100.0%
311225	Fats & Oils Refining & Blending	$214,748,807	$1,760,236	$266,701,264	$1,943,282	$51,952,457	24.2%
311230	Breakfast Cereal Manufacturing	$199,250,858	$1,077,032	$189,694,944	$747,972	-$9,555,914	-4.8%
3112	**Grain & Oilseed Manufacturing**	**$623,666,778**		**$1,199,388,080**		**$575,721,302**	**92.3%**
311313	Beet Sugar Manufacturing	$153,727,346	$674,243	$0		-$153,727,346	-100.0%
311320	Confectionery Manufacturing From Cacao Beans	$24,208,119	$637,056	$21,651,174	$563,563	-$2,556,945	-10.6%
311330	Confectionery Manufacturing From Purchased Chocolate	$57,874,344	$198,200	$115,318,208	$278,194	$57,443,864	99.3%
311340	Non-Chocolate Confectionery Manufacturing	$16,191,046	$241,657	$164,793,936	$335,571	$148,602,890	917.8%
3113	**Sugar and Confectionary Products**	**$252,000,856**		**$301,763,318**		**$49,762,462**	**19.7%**
311411	Frozen Fruit & Vegetable Manufacturing	$1,969,458,162	$307,104	$2,241,340,928	$418,173	$271,882,766	13.8%
311412	Frozen Specialty Food Manufacturing	$95,901,831	$307,104	$673,120,000	$330,260	$577,218,169	601.9%
311421	Fruit & Vegetable Canning	$835,015,008	$307,104	$953,373,632	$485,494	$118,358,624	14.2%
311422	Specialty Canning	$12,935,596	$307,104	$24,566,624	$779,730	$11,631,028	89.9%
311423	Dried & Dehydrated Food Manufacturing	$380,484,937	$307,104	$413,630,432	$404,464	$33,145,495	8.7%
3114	**Fruit & Vegetable Preserving & Specialty**	**$3,293,795,533**		**$4,306,031,616**		**$1,012,236,083**	**30.7%**
311511	Fluid Milk Manufacturing	$726,488,830	$636,155	$1,073,497,408	$761,245	$347,008,578	47.8%
311512	Creamery Butter Manufacturing	$86,769,626	$1,156,928	$28,470,916	$1,519,684	-$58,298,710	-67.2%
311513	Cheese Manufacturing	$447,844,115	$862,898	$821,644,352	$958,868	$373,800,237	83.5%
311514	Dry, Condensed, & Evaporated Dairy Products	$23,099,164	$824,970	$100,679,520	$1,579,007	$77,580,356	335.9%
311520	Ice cream & Frozen Dessert Manufacturing	$146,188,586	$512,942	$142,354,416	$370,761	-$3,834,170	-2.6%
3115	**Dairy**	**$1,430,390,322**		**$2,166,646,612**		**$736,256,290**	**51.5%**
311611	Animal, except Poultry, Slaughtering	$211,754,020	$540,189	$334,086,624	$583,504	$122,332,604	57.8%

TABLE 2 INDUSTRY OUTPUT TRENDS, 2003-2014							
NAICS	DESCRIPTION	2003 INDUSTRY OUTPUT ($2014)	2003 PRODUCT-IVITY ($2014)	2014 INDUSTRY OUTPUT	2014 AVERAGE PRODUCT-IVITY	2003 TO 2014 OUTPUT CHANGE	2003 TO 2014 PERCENT CHANGE
311612	Meat Processed From Carcasses	$445,499,772	$336,480	$546,754,240	$471,005	$101,254,468	22.7%
311613	Rendering & Meat Byproduct Processing	$52,644,891	$408,100	$1,518,820	$572,537	-$51,126,071	-97.1%
311615	Poultry Processing	$77,463,849	$239,826	$21,697,064	$287,696	-$55,766,785	-72.0%
3116	**Meat Product Processing**	**$787,362,532**	**$416,350**	**$904,056,748**		**$116,694,216**	**14.8%**
3117	**Seafood Processing**	**$299,170,517**	**$293,304**	**$381,725,408**		**$82,554,891**	**27.6%**
311812	Commercial Bakeries	$17,411,201	$170,390	$767,013,248	$116,092	$749,602,047	4305.3%
311813	Frozen cakes & Other Pastries Manufacturing	$616,469,234	$644,859	$94,517,872	$148,147	-$521,951,362	-84.7%
311821	Cookie & Cracker Manufacturing	$373,442,078	$500,593	$256,369,168	$347,556	-$117,072,910	-31.3%
311822-3	Dry Pasta, Mixes & Dough Made From Purchased Flour	$68,884,682	$369,241	$94,409,696	$467,301	$25,525,014	37.1%
311830	Tortilla Manufacturing	$25,557,754	$146,884	$85,514,600	$183,670	$59,956,846	234.6%
3118	**Bakeries & Tortilla Manufacturing**	**$1,101,764,949**		**$1,297,824,584**		**$196,059,635**	**17.8%**
311920	Coffee & Tea Manufacturing	$391,253,904	$916,285	$625,181,120	$542,822	$233,927,216	59.8%
311930	Flavoring Syrup & Concentrate Manufacturing	$24,887,507	$731,985	$257,778,528	$2,181,300	$232,891,021	935.8%
311941	Mayonnaise, Dressing, & Sauce Manufacturing	$80,000,127	$620,156	$214,271,872	$563,151	$134,271,745	167.8%
311942	Spice & Extract Manufacturing	$34,720,341	$588,480	$85,297,152	$475,994	$50,576,811	145.7%
3119x	All Other Miscellaneous Food Manufacturing	$966,572,991	$443,881	$1,273,444,624	$403,385	$306,871,633	31.7%
3119	**Other**	**$1,497,434,870**		**$2,455,973,296**		**$958,538,426**	**64.0%**
312111	Soft Drink Manufacturing	$200,080,871	$393,086	$306,880,000	$758,799	$106,799,129	53.4%
312120	Breweries	$191,201,295	$496,627	$1,549,216,128	$807,210	$1,358,014,833	710.3%
312130	Wineries	$396,928,658	$373,756	$860,804,864	$252,602	$463,876,206	116.9%
312140	Distilleries	n/a	n/a	$210,610,880	$982,235	$210,610,880	n/a
3121	**Beverages**	**$788,210,824**		**$2,927,511,872**		**$2,139,301,048**	**271.4%**
TOTAL		**$10,348,012,170**		**$16,368,561,678**		**$6,020,549,508**	**58.2%**

Source: IMPLAN Group, LLC.
Notes: The figures cited in this report come directly from the IMPLAN industry output totals. The 2003 data was previously used in a study done on behalf of the NWFPA, and reported based on a combination of IMPLAN worker productivity data and employment data.

ECONOMIC MULTIPLIER EFFECTS

The highly developed industry linkages between food and beverage manufacturing, Oregon agriculture and the food distribution system leads to significant positive multiplier effects for the Oregon economy. Researchers at Oregon State University have measured these effects and concluded that the agriculture, food and fiber industry overall contributes 13.2 percent of total industry output in the state and 13.8 percent of all jobs. These figures include not only the direct sales and employment from firms in the industry, but also business-to-business transactions related to industry production as well as employee expenditures for retail goods and services. As shown in Table 3, the 32,000 jobs in food and beverage manufacturing expand to more than 80,000 jobs when these economic multiplier effects are considered. On this basis, the food and beverage manufacturing industry represents 6.1 percent of statewide economic output and 3.4 percent of all state jobs.

TABLE 3
OREGON AGRICULTURE, FOOD AND FIBER INDUSTRY ECONOMIC LINKAGES IN 2015 DOLLARS

INDUSTRY	OUTPUT - SALES $	EMPLOYMENT FULL & PART-TIME JOBS (#)
Production	$8,191,288,907	77,490
Processing food	$23,073,136,049	80,155
Processing fiber	$338,666,309	2,294
Ag. support services	$1,048,517,549	16,821
Wholesale trade	$8,984,154,703	54,336
Transportation & warehousing	$3,313,911,344	22,488
Retail Trade - food and beverage stores	$888,685,750	10,662
Food services and dining places Oregon portion	$4,391,585,329	62,371
Total agriculture food and fiber	$50,229,945,940	326,617
Total all Oregon sectors	$379,892,513,834	2,363,234
Agriculture, food, fiber percentage of Oregon economy	13.2%	13.8%

Source: Bruce Sortie, et al., Oregon Agriculture, Food and Fiber: An Economic Analysis. Oregon State University Extension Service, Rural Studies Program. December 2015.

FUTURE GROWTH PROJECTIONS

The Oregon Employment Department (OED) has prepared projections of employment growth for the 2014-2024 period (Table 4). Food manufacturing jobs are projected to grow 21percent during this time, compared to 14 percent for total jobs in the state. Fruit and vegetable processing is projected to grow at an even faster rate of 24 percent, leading all manufacturing industries for which projections were prepared and double the overall projected growth rate for manufacturing as a whole, at 12 percent.

TABLE 4
OREGON INDUSTRY EMPLOYMENT FORECAST, 2014-2024, SELECTED INDUSTRIES

Employment Sector	2014	2024	Change	Percent Change
Total employment	1,868,700	2,128,900	260,200	14%
Total payroll employment	1,766,200	2,010,900	244,700	14%
Total private	1,478,500	1,711,800	233,300	16%
Natural resources and mining	55,300	61,400	6,100	11%
Construction	79,400	97,000	17,600	22%
Manufacturing	179,100	200,200	21,100	12%
Durable goods	125,900	139,400	13,500	11%
Other wood product manufacturing	7,300	8,800	1,500	21%
Machinery manufacturing	12,200	13,900	1,700	14%
Computer and electronic product manufacturing	36,400	38,900	2,500	7%
Semiconductor and electronic component mfg.	27,900	30,900	3,000	11%
Electronic instrument manufacturing	5,200	5,000	-200	-4%
Transportation equipment manufacturing	11,500	13,700	2,200	19%
Nondurable goods	53,200	58,800	5,600	11%
Food manufacturing	27,000	32,600	5,600	21%
Fruit and vegetable preserving and specialty	9,900	12,300	2,400	24%
Paper manufacturing	4,500	3,800	-700	-16%
Trade, transportation, and utilities	324,200	360,400	36,200	11%
Information	30,800	32,800	2,000	6%
Financial activities	93,100	102,200	9,100	10%
Professional and business services	218,800	264,500	45,700	21%
Private educational and health services	247,700	298,600	50,900	21%
Leisure and hospitality	182,600	218,400	35,800	20%
Other services	67,500	76,300	8,800	13%
Government	**287,700**	**299,100**	**11,400**	**4%**

Source: Oregon Employment Department, Published June 13, 2016.

THE MARKET OPPORTUNITY

As described above, the Oregon food and beverage industry achieved a remarkable level of growth during the recession when overall employment declined in Oregon and manufacturing jobs were hit especially hard. Food and beverage companies responding to the survey for this project were overwhelmingly bullish on growth prospects for the industry, with 80 percent planning to expand existing product lines, and 77 percent also planning to add new products. About half of this expansion is anticipated for domestic markets, while half would be distributed both domestically and for export. In discussing specific market opportunities and constraints with focus groups for each industry sub-sector, a number of highlights emerged. These issues do not reflect the total volume of market potential, but rather reflect strategic areas where public/private sector actions can stimulate specific market growth opportunities.

FRUIT/VEGETABLES

This is the largest and best-established subsector in the Oregon food and beverage industry, poised for great expansion in overseas markets, particularly in the Pacific Rim. The major growth objectives for this group are expanding market development and receiving trade assistance from federal and state programs. This sector is heavily affected by the common issues discussed in the action plan, namely workforce development, research and development, and regulatory compliance.

DAIRIES

The dairy products sector is also well-established in Oregon, although not as large as fruit and vegetables. This sector is pursuing expanded export opportunities, as well as co-packing and other forms of partnership with other food sectors, such as fruit and vegetables, candy makers, and coffee. Oregon produces cheese, yogurt, and other dairy products in a wide variety of ready-to-eat products. However, within the industry there is a need for greater regional cooperation and sharing of limited resources to optimize potential.

SNACKS/FOOD INGREDIENTS

This subsector handles a wide variety of commodity types and has a high proportion of business-to-business sales. Oregon co-packing firms are finding that, despite the high cost of doing business in Oregon, there is high demand for their services from producers across the country. The co-packing niche expertise to meet specifications for products designed or formulated by other firms, using either local commodities or those supplied by the customer, is an exceptional Oregon capability that should be marketed and expanded. Promotion of the co-packing subsector would also assist Oregon startup firms that are dependent on co-packing services during their initial stages, and that are currently finding it difficult to find partners during periods of high demand.

WINERIES

Oregon wine production represents 1 percent of U.S. production, yet Oregon wines constitute 20 percent of the highest-rated wines in the country. The Oregon consumer wine market is saturated, however, while only 3 to 5 percent of wines produced in the state are exported. Distribution needs to expand out of country in order to grow this sector, but most producers have limited knowledge of international markets. Oregon vintners face formidable competition from California, Italy, France, Australia and other countries.

The wine industry has a natural affiliation with the tourism industry. There are abundant opportunities for marketing collaboration and development of facilities and attractions in wine country that would also boost tourism. But there are also countervailing concerns about local land use, transportation planning, and preserving the rural character of wine-growing areas that complicate economic collaboration.

BREWERIES

As with wines, Oregon beers are considered a premium product and are well-regarded both nationally and internationally. However, the brewing industry is characterized by an even higher proportion of small firms with limited marketing expertise. Significant potential exists for export and wider domestic distribution, but this sector could benefit from much higher levels of market development assistance from state agencies such as ODA.

Along with expansion of the distribution channel comes the need to expand production. Breweries face an increasing number of issues at the local level concerning fire safety codes, as well as concerns about impacts on local wastewater treatment facilities. State assistance in standardizing technical solutions to some of these issues would help facilitate increased production.

DISTILLERIES

Although distilled spirits is a smaller sector in Oregon than wine or beer, Oregon distillers are finding markets for their products both at home and abroad, including markets in Asia and South Africa. The product is high quality, in part due to Oregon-grown two-row barley as a prime ingredient. There are several high cost factors impeding sector expansion. Distillers face a higher level of taxes at the state level than do other beverage manufacturers, and the state controls the retail distribution of spirits within the state. In addition, distillers have significant carrying costs for inventory and have not been as successful as the wine industry, for example, in getting bank financing for inventory. State policies to increase tax exemptions for personal property, and to reduce manual regulatory reporting, would be of help. Cooperative sharing of market data, and augmented instruction and research in the distilling program at OSU, could help this sector grow to meet its market potential.

BAKED GOODS/GRAIN PRODUCTS

Wheat is a commodity product grown throughout the northwest in similar quality and therefore not conducive to an Oregon brand. However, the quality of the grain is quite high, with a high prevalence of certified seed with low contamination. Wheat prices were exceptionally high between 2011 and 2014 due to global supply conditions but now are beginning to drop as supply increases again. The higher prices affected demand for baked goods, yet in Oregon employment in this sector grew 35 percent between 2004 and 2014 as noted in the discussion above.

Industry observers note that while mature markets in North America and Europe are saturated with traditional baked goods products, there is increasing demand in Asia, where consumers are increasingly incorporating sweet goods into their diets and moving toward greater interest in western style cuisine. In addition, among developed markets there is increasing demand for a greater variety of premium and more healthful baked goods.[2]

While there is substantial consumer demand for organic and non-GMO products, organic wheat is still not a significant percentage of the total wheat crop, so transportation modes are not as well established. The lack of dedicated storage and transportation facilities for organic wheat products is a constraint even at current production levels. Organic crop production requires at least a three-year process of leaving the soil fallow to avoid contamination from non-organic pesticide or fertilizer used in prior farm operations on the land. This is an expensive prospect for many farmers and slows the transition to organic production. However, in Oregon, many acres of former wheat production land were entered into the Federal Crop Reduction Program (CRP), which paid farmers to remove land from production under 10-year contracts. In the current cycle, federal policy and land owner interest is reducing the renewal of these contracts substantially, leaving many acres available for renewed production. Because the land has been fallow for at least 10 years, these acres could be brought into organic production much more quickly. Increasing organic wheat production would not only meet

[2] IBISWorld, *Global Bakery Goods Manufacturing*, December 2015.

consumer demand, but would help to make additional storage and distribution facilities dedicated to organic products more cost effective.

OREGON'S COMPETITIVENESS IN THE MARKETPLACE

With the explosive growth of our digital age of more readily available information, consumers around the world are demanding greater protections on food safety, production sustainability, and environmental quality. Moreover, combined with the perspective of an individual enterprise or a broader economic sector, such as Oregon's food and beverage industry, maintaining competitiveness is a never ending concern. To assess competitiveness, we often measure changes in market share and profitability, the level of exports, and/or the burdens of regulation and taxation. However, the competitiveness of Oregon's food and beverage sector is based not in any single outward measure, but in the quantity and quality of the state's productive resources and ability to maintain those resources into the future. Therefore, it is also important to note Oregon's relative standing among several key economic factors as compared to other states across the country.

For purposes of a comparative competitiveness analysis, we examined various economic measures from several Midwestern states (Illinois, Michigan, Minnesota, and Wisconsin) as well as several Southeastern states (Florida, Georgia, North Carolina, and South Carolina) as compared to the State of Oregon. These regions were identified as they also have many food and beverage manufacturing/ processing establishments and companies. In addition, many of these states maintain active and aggressive business attraction and retention incentives and programs. These economic measures include data with changes from 1990 – 2013[3], as follows:

- Growth in Employment (especially as it relates to food and beverage sector-related measures such as middle-wage and manufacturing industries);
- Growth in Active Establishments (especially as it relates to food and beverage sector-related measures such as middle-wage and manufacturing industries);

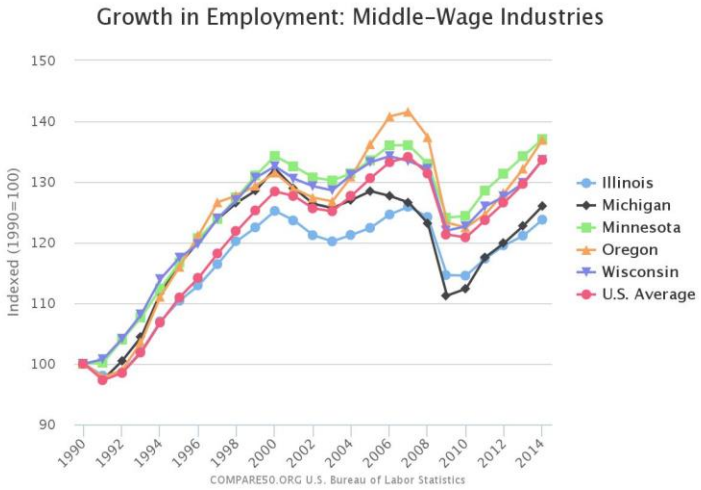
The most telling economic measures in our competitiveness analysis were the comparative growth in employment and active establishments within middle-wage industries and manufacturing industries.[4]

As indicated from the indexed comparative graphs on growth in employment within middle-wage industries and manufacturing industries, Oregon compares favorably with Midwestern states like Illinois, Michigan, Minnesota, and Wisconsin. In recent years, Oregon has exceeded most of these Midwestern states in the growth of middle-wage (food and beverage processing) industry jobs, but only slightly better than the U.S. average.

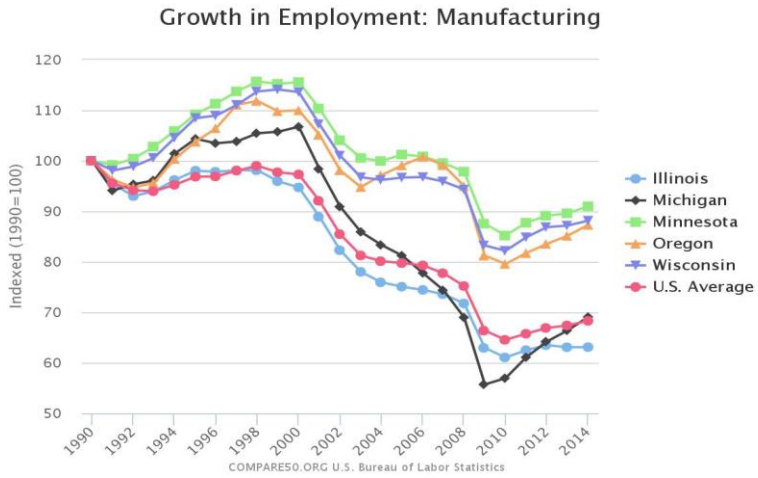
[3] Compare50.org, downloaded on July 18, 2016. Compare50.org is a Next 10 project. Next 10 is an independent, nonpartisan organization that educates, engages, and empowers Californians to improve the state's future. Next 10 commissions research from leading experts on complex issues and creates a portfolio of nonpartisan educational materials, including Compare 50, that foster a deeper understanding of the critical issues we face.

Compare50.org was created to display how California's economy performs when compared to other states. Compare 50 data was compiled for Next 10 by Beacon Economics. Compare50.org features the most up-to-date data from authoritative sources including the U.S. Census Bureau, the Bureau of Labor Statistics, the National Center for Education Statistics, PriceWaterHouseCoopers, the Federal Communications Commission, and the U.S. Patent and Trademark Office.

[4] Based upon definitions and categories utilized in Compare50.org data and further defined in http://next10.org/ca-employment, downloaded July 19, 2016. Food and Beverage manufacturing fell under the category of "Middle-Wage" Industries.

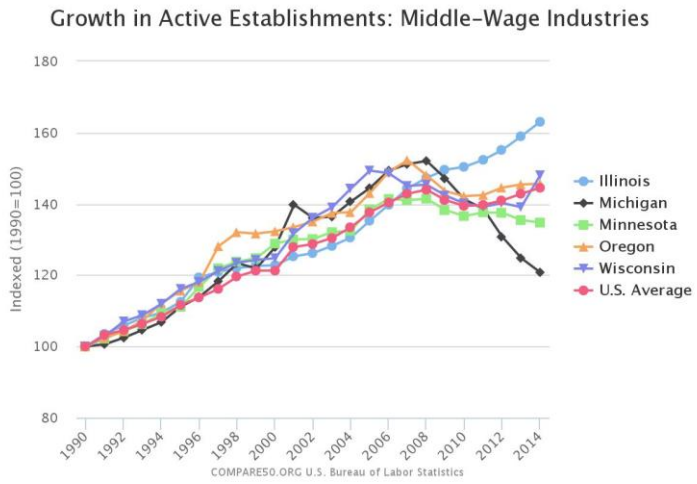


Oregon has also remained competitive with these states in the growth in manufacturing jobs, surpassed only by Minnesota and Wisconsin during the fifteen year period of 1990-2014.

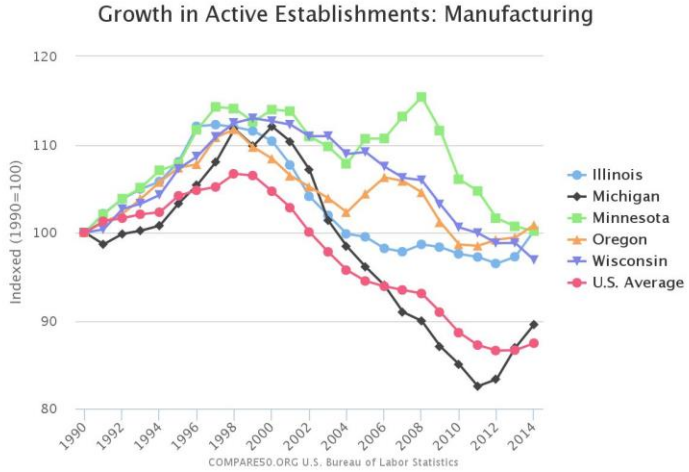


Another competitive measure we examined was the growth in active establishments (businesses) of both middle-wage and manufacturing industries as shown in the graphs below.

When compared to Midwestern states, Oregon has held its own in the growth of new middle-wage industries, surpassed only by Illinois. Nevertheless, in recent years, Oregon's growth has mirrored that of the national average.

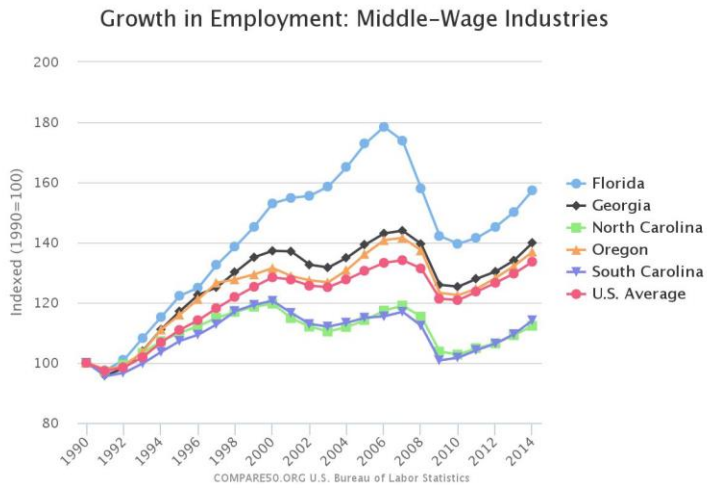


Oregon's growth in manufacturing firms has also ebbed and flowed over the years, with less volatility than other Midwestern states, which were hit hardest by the recession and negative impacts upon the auto industry and related businesses.

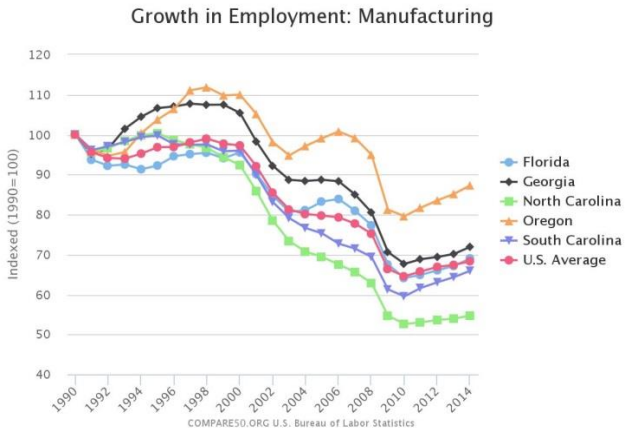


Another relevant competitive comparison occurs with an analysis of Oregon's performance versus that of several Southeastern states, including Florida, Georgia, North Carolina, and South Carolina. By most measures, these states have enjoyed an environment of lower costs (e.g., labor, energy, real estate, taxation, etc.), plus have been known for aggressive business incentives and active business recruitment programs.

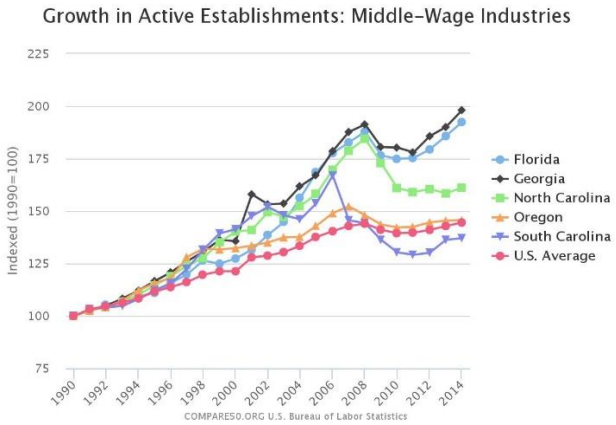
As indicated from the following graphs, Oregon's competitive position is mixed when compared to these Southeastern states. While Oregon's growth in middle wage industry jobs remains consistent with the national average, Florida has far surpassed Oregon's growth, with Georgia only slightly ahead.



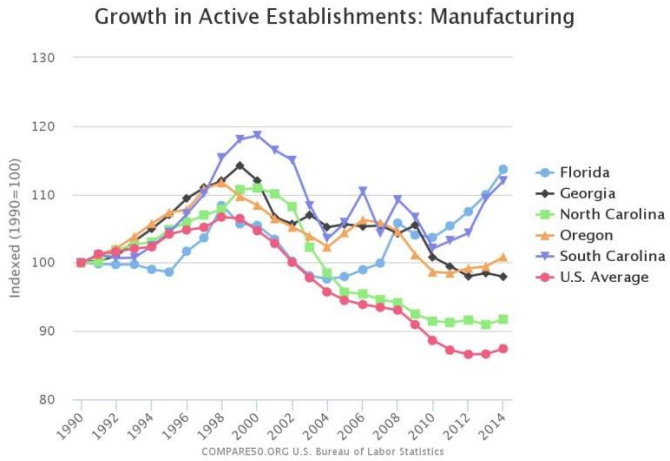
Although all states have experienced a decline in overall manufacturing jobs, it appears that Oregon's decline has been less precipitous than those of these Southeastern states, with North Carolina taking the biggest hit with losses in the textile and furniture manufacturing industries.



However, the lower cost of doing business in several Southeastern states becomes most evident when growth in active establishments of middle-wage industries is compared. Florida, Georgia, and North Carolina have surpassed and continue to surpass Oregon. Oregon's growth is comparable to the U.S. average and only slightly above that of South Carolina.



The lower cost of doing business and aggressive state recruitment is further reflected when comparing the growth in active establishments in Manufacturing. Florida and South Carolina surpass Oregon in this measure, with Georgia and North Carolina following behind.



STRATEGIC INITIATVES

SITUATIONAL ANALYSIS

Demand for Oregon food and beverage products is at an all-time high and steadily growing. The industry led all Oregon manufacturing sectors though the Great Recession in 2008, reflecting wide-ranging consumer demand for its products. Between 2007 and 2012, total employment in Oregon declined 5.3 percent, and the Oregon manufacturing sector lost 15.8 percent of its jobs, yet Oregon food manufacturing gained 7.8 percent in jobs during this same period.[5] Supporting nearly 32,000 jobs directly at its manufacturing plants, the industry also has a significant economic multiplier effect for the state economy. Researchers at Oregon State University estimate that the full economic impact of the industry represents 6.1 percent of statewide output and 3.4 percent of statewide jobs. Combined with farm production and related wholesale and retail distribution channels, the agriculture food and fiber industry is estimated to comprise 13.2 percent of Oregon's total economic output and supports 13.8 percent of full- and part-time jobs in the state.[6]

The Oregon food and beverage industry's main avenue for expansion is developing even stronger external markets, particularly in the Pacific Rim countries. However, the connection to local markets is vital on many levels and in order to expand, the industry must develop a stronger foundation at home. The Oregon brand in food and beverage denotes exceptional quality and craftsmanship, and commands a premium in many markets. However, as Oregon products are distributed more widely, Oregon producers are encountering price competition with producers in lower-cost regions.

The industry is committed to maintaining and enhancing food safety and quality. Significant investments are needed in new facilities and worker training to meet ever-rising food safety standards, particularly in response to increasing consumer demand for fresh and fresh-frozen, ready-to-eat products. The state can encourage businesses to make investments by creating incentives to invest in plant modernization and workforce development, and by making strategic investments in research and development on the industry's behalf. In addition, maintaining access to low-cost energy sources is a critical element of competitiveness for the food and beverage industry. These investments will yield untold returns in a safe, secure, Oregon-produced food system.

Expanding production to meet food and beverage market opportunities will require an increased supply of skilled workers, including experienced agricultural workers, technical workers trained to operate and maintain increasingly complex machinery and control systems, and entrepreneurs and senior level managers to invent the next wave of food innovations for the global market.

Some employers believe labor costs are out of proportion to the skills and production efficiency workers have to offer. This perception is leading businesses to accelerate automation of processing lines. As new, higher minimum wage requirements come into effect, companies are willing to invest as much as $125,000 per worker to replace human labor with machinery.

These projected labor needs will require new approaches and expanded efforts throughout the Oregon educational system, from K-12 through the community colleges and technical schools to the four-year universities. The industry and the state must partner together to promote jobs in the food and beverage industry as exciting, creative career opportunities for young people and experienced workers alike.

With its emphases on locally produced commodities and investment in energy efficiencies, the Oregon food and beverage industry has long been engaged in sustainable business practices. Food and

[5] Pat O'Conner, Oregon's Food Manufacturing Sector: A Staple of Oregon's Economy. November 22, 2013.

[6] Bruce Sortie, et al., Oregon Agriculture, Food and Fiber: An Economic Analysis. Oregon State University Extension Service, Rural Studies Program. December 2015.

beverage businesses can join rural and urban Oregon on a course of sustainable growth by expanding the supply of living-wage manufacturing jobs resistant to future recessions. An economic engine built on renewable food resources can fulfill local needs while meeting the demands of an expanding global market.

To build this foundation for growth in Oregon, investments are needed not only in workforce development, product and process research, and expansion of the manufacturing and distribution infrastructure, but also in educating the public about the value and benefits of an industry so vital to everyone's health and safety.

STRATEGIC ISSUES

The extensive outreach conducted by the consulting team has identified a number of central issues that affect the competitiveness and expansion capability of food and beverage companies in Oregon. These are discussed below along with recommendations for strategic initiatives to address the most important concerns. These proposals have been compiled from input from individuals in the industry and consultant research during the study process. The discussions with industry representatives have identified a wide range of issues, many relating to detailed operational impediments and costs. However, the focus of the Road Map is on higher-level strategies that have the greatest potential to move the industry forward as a whole, recognizing that specific subsectors or groups of companies will have additional recommendations related to their areas of operation. Similarly, the food and beverage industry features many small businesses in Oregon which have needs relative to access to capital, shared facilities, marketing resources, and workforce. The state offers a wide range of services and program to assist small and medium businesses. These services are not addressed in detail this report but more information is available from Business Oregon and the Oregon Department of Agriculture.[7]

LEADERSHIP AND COORDINATION

The process of creating this Road Map has involved effective partnership between government agencies, including Business Oregon and ODA, and industry representatives, including the Oregon Food and Beverage Industry Leadership Council (OFBLC), the Oregon Business Council, the Oregon Business Association, and the Northwest Food Processors Association. Implementation of the Road Map's business strategy will require a long-term commitment to continued collaboration and coordination among these entities and others in the industry and in state and local government.

In addition to the food processing and business advocacy groups named above, various other industry boards, guilds, and commissions engage in advocacy, marketing, research and other activities on behalf of their industries (examples include the Oregon Wine Board, Oregon Brewers Guild, and Oregon Distillers Guild). The OFBLC and the state agencies should ensure that these entities are represented directly or by proxy, and are actively engaged through regular contact, meetings, and participation on appropriate task forces and steering committees.

Business Oregon and the Governor's Office have an established regionally-based network comprised of Business Development Officers and the Regional Solutions Teams, and federally funded Economic Development Districts (EDA). Strategic investment in regional economic development projects and services can yield big benefits for food and beverage companies, particularly in rural areas, where private-public partnerships can create shared regional resources such as co-packing plants, food storage and distribution facilities, and food hubs.

RESEARCH AND DEVELOPMENT/TECHNICAL ASSISTANCE

STATEMENT OF THE ISSUE

For the Oregon food and beverage industry to remain competitive in the domestic and global marketplaces and to stay on top of technological and production advancements, the state's food and

[7] See www.oregon4biz.com

beverage companies need access to adequate research and development opportunities, facilities, and programs. Oregon food and beverage processors are faced with increasing food safety and environmental requirements and heightened consumer expectations. They need more extensive services, training, and education to comply with the changing food safety mandates from both the federal and state governments. In addition, more research and development assistance in navigating environmental regulations is essential to managing and maintaining sustainability and protecting the state's natural resources of land, water, and air.

The state's primary public provider of food and beverage-related research and development is Oregon State University. Within the University, the College of Agricultural Sciences is Oregon's principal source of knowledge relating to agricultural and food systems, and a leader in the study of natural resources, life sciences, environmental quality, and rural economies. As a fundamental part of the University's land-grant mission, the college creates knowledge to solve problems and discover new opportunities for the future. Within the College of Agricultural Sciences is the Department of Food Science and Technology ("FST"), which has principal responsibility to interact with Oregon's food and beverage processing industry. The Department has active research programs and faculty with specializations in:

- Food Chemistry and Biochemistry
- Food Microbiology and Biotechnology
- Flavor Chemistry and Sensory Evaluation
- Food Processing and Engineering
- Enology (Winemaking)
- Brewing Science
- Dairy Processing
- Seafood Science and Surimi
- Value-Added Foods
- By-product Utilization

Oregon State University is currently in the process of enhancing its role as a global leader in food and beverage innovation. To support Oregon's status as a producer of quality foods and beverages through sustainable methods and processes that further support the environment and economy, OSU has proposed a major infrastructure and renovation project focusing on a "Soil to Shelf" process. This effort proposes to invest $18 million in renovations and new facilities for the brewing, wine, and dairy processing programs, to be funded through equal shares of public and private contributions. This proposal is now making its way through the legislative budget process. The University is also committed to enhancing and improving the services and facilities provided at its Food Innovation Center (FIC) in Portland.

Potential Strategic Initiatives

- Support facilities improvements at the university level. Many OSU facilities for instruction in food processing are outdated. Current OSU infrastructure enhancement proposals totaling $18 million are being directed to improving facilities in the brewing,

wine, distilling, and dairy processing programs. These efforts should be given high priority at the state and from the industry.

- Expand innovation related services to medium and large sized companies. The Food Innovation Center (FIC) has reached capacity and should be expanded. The FIC focus is primarily on helping startups, but there is a need to expand innovation related services to also help medium and larger size firms to enhance their growth needs. The industry should work with OSU to development a specific plan for this expansion. The plan should also establish a framework for a financially sustainable operational model for the facility, perhaps addressing the ability of the FIC to share in royalties generated from new product development.
- Develop a public/private business model whereby OSU can work directly with companies on proprietary research and development, and expand its overall level of industry driven applied research. Wastewater reclamation and transportation efficiency innovations are two areas for applied research with great potential benefit (see discussion in Distribution Infrastructure section below).
- Expanded research capacity to assist firms with food safety issues would be helped by additional OSU microbiologists working with industry on food safety issues.
- Invest in Cooperative Extension's capacity to provide food processors with informational support on topics in nutrition, public education, and product development assistance.
- Identify ways for the state to match federal funds in the area of food safety and technology development. Food safety is a persuasive rationale for helping aging production facilities upgrade equipment and systems.

WORKFORCE DEVELOPMENT

STATEMENT OF THE ISSUE

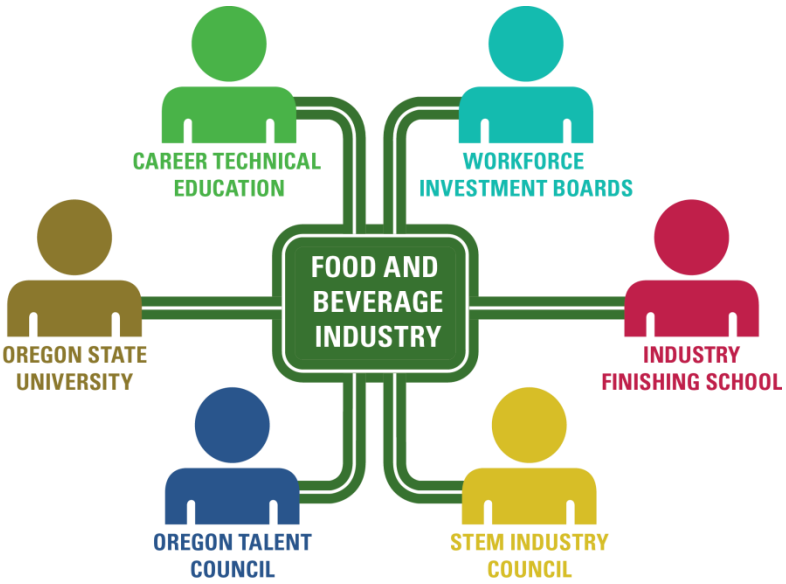
Food and beverage companies have difficulty finding qualified workers with necessary skills. The rising cost of labor is accelerating efforts to automate production lines and systems, replacing jobs with machines. In the past, the threshold for employing an employee versus investing in machinery was about $50,000. Now that threshold has increased to as much as $125,000. This reduces the quantity of jobs but also further increases the level of technical skills needed in the remaining workforce. Despite this trend, and in some ways because of it, there are well-paying jobs and viable career ladders in the food and beverage industry for qualified workers. However, there is a critical need to re-establish technical training in public schools, especially in the community colleges. A mechatronics program that combines instruction in electrical, mechanical, and hydraulic systems with training on high-speed machines is a vital need.

The food and beverage industry also needs management, marketing, and entrepreneurial talent to support long-term future expansion. Many companies recruit this talent from outside the state. The industry needs to work with the major universities in the state, particularly the business schools, to promote high-level career opportunities in the food and beverage industry among students and business school faculty.

Oregon's existing educational infrastructure can potentially address these needs, but strong industry involvement is needed to help direct the available resources. In 2015, the Oregon Legislature more than doubled the state's investment in Career and Technical Education (CTE) and Science, Technology, Engineering and Math Education (STEM). While ongoing state-level efforts will help pull these resources together into a more cohesive program, the food and beverage industry should engage with local, regional, and statewide educational entities to design and implement the educational curriculum

and training programs the industry needs. This will require not only organizational efforts but also financial investment from the industry. Fortunately, other industries in Oregon have also been working on this issue and have helped to develop some successful approaches, as explained below.

The traditional educational system of K-12 schools, community colleges, and four-year universities (as well as private educational institutions and organizations) is supplemented by several federal and state programs focused on technical workforce training.



Career Technical Education (CTE): Developed out of the National Career Cluster Initiative and currently funded by the federal Perkins Career and Technical Education Act of 2006, CTE is an approach to applied skills education that has, in collaboration with industry, developed employability standards for a wide range of career paths relevant to Oregon industries. These standards have been applied to courses of instruction available to students in high schools and community colleges. Oregon currently receives $11 million per year from the program, which is administered by the state's department of education. These funds are split evenly between high school and community colleges, with about 17 community colleges and more than 200 high schools currently participating around the state. Additional schools and community colleges could participate in the program; however, the level of federal funding is fixed regardless of the number of local schools in the program.[8] The state also offers competitive grants through its CTE Revitalization program to supplement federal funds. State officials have indicated that a grant application for a food and beverage program would be well received, as it would constitute an innovative model in Oregon.

The state has identified a skills cluster for food science and processing in its CTE program, but there are no local school districts currently offering programs based on this skills cluster. Typically, CTE programs are initiated when local school districts approach industry representatives (or vice versa) to collaborate in designing a program using a state-adopted skills cluster profile as a guide. The basic program needs to be funded at the local level, which may require industry financial participation with the local school district. However, with application to participate in the state CTE program, the local program would become eligible to receive funding for additional equipment or facilities beyond the basic level defined in the program guidelines. The application would be even more competitive if it was submitted by a regional consortium of several school districts that could share high-level equipment or facilities. In addition, the state assists with licensure for teachers qualified to teach the program, and

[8] Reynold Gardner, Secondary/Post-Secondary Transitions – Ed. Specialist, Agriculture and Natural Resources Systems, Oregon Department of Education, personal communication, June 9, 2016.

provides other technical assistance. Finding and/or training qualified instructors is a critical element for success of such CTE programs. Ideally, a program would be designed to begin at the high school level, and then proceed with options for students at the community college and possibly on to a four-year college, depending on the career path. Community colleges also offer CTE programs that may not necessarily be connected to local high school programs.

Workforce Investment Boards (WIBs). Originally authorized by the federal Workforce Investment Act of 1998, WIBs are now funded by the Workforce Innovation and Opportunity Act (WIOA) passed in 2014. WIBs exist at the county level in most areas and are overseen by a statewide WIB. The WIBs have majority private sector membership and are responsible for establishing coordinated workforce development plans that meet identified skills needs for workers, job seekers, and employers. Support from the WIBs, with WIOA funding, encourages local areas to adopt or expand best practices in career pathways (CTE), industry sector partnerships, and attainment of industry-recognized certificates and credentials linked to in-demand occupations. Among other services, WIBs frequently fund on-the-job training programs directly with employers. Currently WIBs are working with local employers to develop "sector strategies" to address specific workforce needs in targeted industry sectors. For example in Eastern Oregon the WIB is developing a sector strategy around advanced manufacturing, an effort that includes many food processors from Boardman to Ontario. Opportunities exist to further partner with the WIBs on sector strategies that support food and beverage manufacturing.

Science, Technology, Engineering, Math (STEM) Investment Council. This is the primary program Oregon has established to prepare elementary, secondary, and college students for a variety of high-wage and high-demand occupations. The Oregon Legislature established the STEM Investment Council to 1) double the number of 4th and 8th grade students proficient in math and science by 2025 and 2) double the number of CTE-STEM degrees and certificates by 2025.

The food and beverage industry could use the STEM Investment Council's "STEM Hubs" program as a vehicle for training youth and young adults for employment opportunities in food processing. The STEM Hubs are multisector partnerships that link local educators, higher education, workforce and economic development partners, community-based organizations, and business and industry representatives to develop a shared vision for increasing student access to STEM and other experiential learning opportunities. STEM Hubs offer educators professional development training in best practices for STEM instruction, promote opportunities for hands-on learning experiences for students, both in and out of school, and connect students to STEM employment opportunities in the region and state.[9] In addition to working with WIBs and the CTE program, the food and beverage industry could also coordinate with STEM Hubs to prepare its future workforce, beginning as early as high school.

Although the food and beverage industry has not traditionally participated in STEM-based curricular development, the need is becoming more apparent. Oregon's 2016 draft STEM Strategic Plan[10] notes that the demand for workers with STEM backgrounds is also coming from "established sectors such as food processing, manufacturing, agriculture, and forest products," not just the traditional STEM-focused industries such as "electronics, software, clean energy, and cutting-edge cancer research." The STEM draft also observes that Oregon's recent economic resurgence is based on "the infusion of emerging technologies into every sector of the business landscape." [11] and that "the STEM Strategic Plan is helping people understand the changing nature of work," with the realization that many emerging industries such as artisanal food manufacturing are highly technical and scientific.[12]

STEM Hubs can be found throughout the state of Oregon. Food and beverage companies should participate in local STEM programs to ensure that food science is part of the curriculum taught in their

[9] http://education.oregon.gov/wp-content/uploads/2016/02/STEM-Media-Release.pdf
[10] http://education.oregon.gov/wp-content/uploads/2016/03/Oregon_STEM_Strategic_Plan_CEdO_2016.pdf
[11] Transforming STEM Education in Oregon: A Strategic Plan (Discussion Draft 1.0, V20) (March 2016)
[12] Kyle Ritchey-Noll, executive director, Oregon Learns, personal communication, June 22, 2016. . .

local schools. The Southern Oregon STEM Hub, a typical example of a STEM Hub, includes among its participants, an area workforce investment board, community colleges, and career technical institutes.[13] Food and beverage industry associations should act to establish STEM Hubs in regions that lack but could benefit from them, and at the state policy level, should participate in the CTE-STEM Employer Coalition. The Coalition is a vehicle for all industries and private labor groups who value CTE and STEM programs as vital investments preparing students for the cognitive demands of technical occupations and life.[14]

The Oregon Talent Council (OTC). Established in 2015 by the state legislature, the OTC is administered by the Oregon Employment Department and is intended to provide an additional voice for industry in designing technical education programs, particularly at the university level. The OTC published a Biennial Talent Plan in November 2015 which defines a number of target industries and 10 professional/technical occupational clusters. The food and beverage industry is included in the plan as part of the Advanced Manufacturing industry, and the need for additional workers skilled in mechatronics is specifically identified in the plan. Several of the occupational clusters identified in the plan are highly relevant to the food and beverage industry, such as: technologically skilled mechanics and maintenance technicians, industrial machinists, millwrights and operators, and data and business intelligence analysts, among others.

The OTC has a small pool of funds totaling $5.5 million over two years to fund development of training models that meet the industry and occupational cluster criteria. In addition, OTC has $1.2 million to fund directed projects, which might be more intensive model development programs. The Council is heavily focused on retraining and upgrading skills for the incumbent workforce, which is highly relevant for the food and beverage industry. Existing food and beverage workers need extensive re-training to keep current with ever-evolving food safety requirements and technologies. In early July of 2016, OTC will begin reviewing options to apply its directed funds pool to the development of new training models in food science and manufacturing.

Other models exist at both the local and industry-wide levels for technical workforce training. The Pipeline-to-Jobs program in Albany was started with the help of local food processing and other manufacturing companies, and is operated by the Albany Chamber of Commerce. The program is designed to stimulate interest in manufacturing among students at the high school and community college level, offering technical skills classes, career opportunity events and counseling, and "employability" instruction to teach work habits and soft skills. This program is entirely funded by local industry, with instruction provided by the community college. The college reports significant student interest in response to the outreach program.[15]

The Sage Center, developed by the Port of Morrow in Boardman, is an example of food and beverage industry collaboration to promote agriculture and food processing to a wider audience, particularly school children. The center hosts numerous school groups as well as adult visitors throughout the year to educate them about the food processing industry and potential career opportunities.

On the private sector spectrum, the bioscience industry has established a "finishing school," entirely industry operated, that provides career advancement training for incumbent workers (Bio-Pro program) and a separate program to attract and train workers new to the industry (Bio-Catalyst program).

POTENTIAL STRATEGIC INITIATIVES

- Work with state and local educational agencies to develop education and training programs specific to the food and beverage industry. This can occur on a number of

[13] Southern Oregon STEM (http://www.southernoregonstem.org/ and http://www.southernoregonstem.org/partner-with-southern-oregon-stem/current-partners/)

[14] Oregon CTE-STEM Employer Coalition (http://orbusinesscouncil.org/our-work/cte-stem-coalition/)

[15] Josefine Fleetwood, Workforce Development Director, Albany Area Chamber of Commerce, personal communication, June 2, 2016.

levels to dovetail with existing state and federally-funded programs for education and workforce development:

- Identify a local school district where the Oregon Career Technical Education Skill Cluster for Food Science and Processing can be initially deployed and tested. This would best be implemented in an area where a local education program already aligns well with food and beverage industry needs.
- Explore opportunities to develop technical education models through the Oregon Talent Council (OTC). The Council focuses on re-training and upgrading skills for incumbent workers as well as new workers. The food and beverage industry must continually train its workforce to keep pace with revisions in food safety regulations.
- Work with regional Workforce Investment Boards (WIBs) and their "sector strategies" initiative to ensure adequate coverage of food and beverage processing needs.
- Connect with existing STEM Hubs and identify additional regions with concentrations of food and beverage companies where additional STEM Hubs could be established.
- Organize discussions with university business schools to better integrate reference to food and beverage careers in the curriculum. Promote course sharing among multiple university departments to create food specific degree paths that cover a wide range of relevant disciplines including agriculture, engineering, food science and business. When established, promote this focus on concentrated food career degrees to out of state students.
- Explore the potential to establish a "finishing school" for food and beverage manufacturing, based on model examples implemented in other industrial sectors, such as bio-sciences.

- Promulgate models developed by some food and beverage companies that provide employees with education benefits leading to job certifications and advancement within the company.
- Compile information and guidance on labor laws, union work rules, and liability issues to assist companies that wish to offer summer jobs or internships to high school students. Explore alternate payment plans that would offer a "training wage" level or stipend to interns rather than minimum wage, as an inducement to companies to expand their internship programs to Oregon residents.
- Sponsor high school student leadership programs such as Future Farmers of America (FFA), Skills USA, and ProStart to generate student interest in food processing as a career. For example, an FFA club could focus on value-added food and beverage processing rather than agricultural production if proper sponsorship were provided.
- Collaboration between the Oregon Employment Department (OED) and private workforce referral agencies to better coordinate part-time worker availability, or shared workers, would be of particular benefit to startup firms.

DISTRIBUTION INFRASTRUCTURE

The state of Oregon's transportation infrastructure impacts the food and beverage industry. Loss of container shipping capacity in Portland has affected processors' access to raw products as much as it has the distribution channels for finished goods. As shipping and rail options have decreased, greater

burdens have been placed on the state highway system, with adverse effects for all Oregon citizens, as well as the distribution industry.

Moving goods is a highly decentralized activity, and every processor works out their own individual ways to obtain raw materials and to ship product to market. Shipping costs directly correlate to volume, distance, and the number of destinations. Rail only becomes cost effective for multiple containers or railcars and at shipping distances over 1,000 km (~500-600 miles). Reliable inbound shipments of raw materials are as important as outbound shipments of finished goods. In general:

- The smallest shippers with less-than-truckloads (LTTL) and less-than-container loads (LTCL) typically ship by truck from suppliers and to markets at relatively high cost, but are usually able to offset that cost by charging a premium price for their product. They often sell direct to the customer, and ship a high percentage of their finished goods via FEDEX and UPS, even some by air freight. Examples include organic processors, specialty products, wineries, breweries, distillers, and farm stores. Since the 2008 recession the number of freight consolidators has diminished, putting further upward pressure on distribution costs.
- Small and mid-sized processors (SMEs) transitioning into wholesaling may have the greatest distribution challenges, especially those in rural Oregon. Even though they may now receive and ship full truckloads or a few containers per year, they often cannot meet volume minimums. Negotiating the entire distribution chain is time consuming. Rail at these low volumes is costly and unreliable, and there are too few intermodal facilities to be convenient. The vast majority of product is shipped intrastate and interstate by truck.

A big export challenge for all processors has been the loss of international container shipping capacity at Portland Terminal 6 in early 2015. This terminal handled almost half of all Oregon container traffic. Over 1,000 shippers had to scramble and ship by truck at costs of $400-800 more per container.[16] Most containers now ship in or out of Seattle/Tacoma at higher rates per container and additional mileage to port. The Governor's International Trade and Logistics Initiative is discussing several alternatives to address the Portland terminal closure.[17] Inland port development will help relieve congestion at coastal ports and also provide land for regional industrial development. More truck-rail connectivity will add flexibility to the transportation system, especially in Eastern Oregon and the Willamette Valley. The Port of Morrow at Boardman has recently added a container intermodal facility, which can connect to Vancouver, Washington for transfer to ocean ports. The Port of Umatilla has new container capacity as well.

As is true everywhere, truck transportation is plagued by a truck driver shortage and tightening regulatory requirements, including the new national 8-hour limit on drivers, increased security screening, and minimum age requirement. There is also a trailer and heavy chassis shortage, but the industry has begun investing in equipment. Rail is constrained by limited rolling stock. Roads and bridges carry more traffic than ever, are congested and deteriorating, and need significant investment to keep Oregon competitive.[18]

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[16] http://oregontradesolutions.com/assets/reports/TLReport-Full.pdf, page 4.

[17] Oregon's International Trade and Logistics Initiative. http://oregontradesolutions.com/assets/reports/TLReport-Full.pdf

[18] According to a report released by ODOT in September 2015 (http://transportationinvestment.org/wp-content/uploads/2016/04/Oregon-HB-2550_2015.pdf).

Bridges: More than half of Oregon's bridges were built before 1970 and will need major repairs by 2020. While state highway bridges have a 100-year life cycle, ODOT explains that the agency is only able to replace an average of three per year, well shy of the 27 bridge replacements per year necessary to keep up with the aging infrastructure. The analysis estimates that $240 million per year over the next two decades is necessary to maintain the deteriorating bridges, with an additional $180 million for state highway bridges.

Small rural producers seeking to add production capacity do complain about the limited availability of co-packing, warehousing, cold storage, meat processing, food hubs, and other services, and must look to urban areas or across state lines where these services are more readily available. For example, organic grain producers that need to keep their product separate from nonorganic products, struggle to find adequate storage capacity.

Water availability and quality affect agriculture, food processing, and the other users of surface and groundwater in the Columbia, Snake, and Klamath basins. Finite water supplies limit crop production, which in turn limit raw material availability for processing. Specifically, there are opportunities to improve the efficiency of using reclaimed industrial and municipal wastewater for irrigation and/or groundwater recharge. Strengthening research and investment in these areas will help mitigate the ongoing water constraints (see strategic initiatives under R&D/Technical Assistance above and Government regulation below). Updating regulations to keep up with technology advancements will help speed the approval process.

Oregon has a cooperative organizational framework in place to address the above issues, including the International Trade and Logistics Initiative already mentioned, and the Regional Solutions Teams that direct funds to important regional projects.

POTENTIAL STRATEGIC INITIATIVES

- Continue to invest adequately in highways, roads, and bridges to sustain reliable truck transport of food and beverage raw materials and finished product. Pass a statewide transportation improvements package.
- Improve the effectiveness of the resources available to solve regional infrastructure and economic development issues.
- Identify ways to expand business-to-business distribution channels and marketing to assist the many Oregon food and beverage companies that produce intermediate products, or who can provide co-packing services.
- Provide retention and expansion assistance for LTTL and LTCL shippers and consolidators that operate in rural areas. At the very least, avoid enacting any Oregon-only regulations that make it more expensive for them to do business.

MARKET DEVELOPMENT

Many of the food and beverage firms participating in this study identify substantial market opportunities overseas as well as in domestic markets beyond the west coast. With the rapidly increasing middle class populations in Asia, the Pacific Rim countries are a prime market, but many companies also report significant opportunities in Latin America, Europe, and Africa. While some Oregon firms have enjoyed good success in penetrating export markets, many small- to medium-sized firms lack the knowledge and expertise to properly promote their products overseas. Business Oregon and the Oregon Department of Agriculture (ODA) provide technical assistance and grant funding to firms seeking to export food and beverage products, These efforts can be better linked to an overall state market development strategy that reflects the unique characteristics of Oregon food and beverage products. Such a strategy could help coordinate a variety of resources and take advantage of overlapping promotion efforts by several subsectors within the industry.

Roads: A January 2016 Oregon update by TRIP found that 16 percent of the state's major roads are in poor condition, contributing to $967 million per year in vehicle repairs and other operating costs borne by motorists. Additionally, 42 percent of Oregon's major urban highways are congested.

Oregon food and beverage companies have an opportunity to develop an Oregon food brand for some food products, but not all. Grains, fruits, potatoes, onions, beef, and other commodities are typically grown throughout the Tri-State area of Oregon, Washington and Idaho, and are often aggregated and processed in Idaho or Washington and then promoted as a Tri-State product. On the other hand, products grown and processed in Oregon whose provenance can be confirmed and whose labels can identify them as Oregon products are good candidates for an Oregon brand. Examples of products found in California supermarkets that area easily identified with Oregon include Oregon cherries, Oregon hazelnuts, Tillamook cheese and ice cream, Bob's Red Mill grains, Deschutes Brewery beers, and Beaver Brand mustards.

Brand promotion is best handled by the industry directly or through the various commodity commissions, local associations, and guilds. Firms in different subsectors of the industry make vastly different products, distribute them through different channels, market them to different customers (e.g. wholesale versus direct-to-consumer), and key on different product qualities (e.g. organic, taste, sugar content, etc.). However, the state could help by investing in information resources that would benefit wide segments of the industry and are difficult to collect by individual companies due to the cost and technical expertise required. A marketing data clearinghouse available to all firms in the industry could include data about key characteristics of Oregon food and beverage products (i.e., high quality, sustainable, etc.) and also detailed, high-level consumer analytics to help target marketing efforts to specific, appropriate demographics.

Certain segments of the industry are natural partners with the tourism industry. Particularly good examples are beverage products and specialty foods offered through restaurants and other direct-to-consumer outlets at tourism destinations around the state. Collaboration with Travel Oregon on its domestic and foreign marketing efforts is an essential ongoing step for the industry, but could be improved through the use of more refined consumer analytics as identified above.

In addition to marketing Oregon food and beverage products to consumers, marketing the state to additional food and beverage companies will be essential to building a critical mass of industry operations, making the food and beverage industry an effective industry cluster for Oregon's economy. The state has a business attraction program coordinated through Business Oregon, which also coordinates with ODA as it relates to food and beverage industry attraction. In focus group conversations throughout this study process, respondents said that targeted marketing to co-packaging, distribution, transportation, and food machinery businesses would help fill vital niches in the industry cluster in Oregon. A general media component geared to increasing awareness of the food processing industry was also recommended to help attract new employers, employees, and entrepreneurs.

POTENTIAL STRATEGIC INITIATIVES

- Through ODA and Business Oregon, define and develop an explicit value-added food and beverage market development strategy. Allocate state resources to assist food and beverage companies with foreign and domestic export, as well as access to other market development opportunities.
- Compile data about the characteristics of Oregon food and beverage products (i.e., high quality, sustainable, etc.) and supporting high-level consumer analytics that can be accessed and used by companies to support their marketing programs. Where appropriate, coordinate with existing state marketing programs such as those conducted by Travel Oregon.
- Increase existing efforts through the Team Oregon partnership with Business Oregon, ODA, and local economic development entities to attract more food and beverage companies and entrepreneurs to Oregon. Explore opportunities to attract more co-packaging, distribution, transportation, and food machinery businesses.

- Develop a comprehensive public education campaign in Oregon to convey the benefits of the industry, increase external markets, and attract new companies and specialized talent to the state. Specific elements of this campaign would include:
    - Promotion of food and beverage occupations as exciting career choices for junior high and high school students to consider.
    - Promotion of food and beverage businesses to millennials and urban voters as a means to achieve ideals of sustainability, local sourcing, and high-quality food choices.
    - In rural areas, promote the message that food and beverage occupations can provide a viable alternative to declining jobs in the forestry and raw materials extraction industries.
    - Convey to voters and legislators that the food and beverage sector is recession resistant and a substantial part of the Oregon economy, but that the industry has an aging workforce and aging plants that need to be replenished by substantial public and private investment in order to maintain food safety and cutting-edge product manufacturing.

GOVERNMENT REGULATION

STATEMENT OF THE ISSUE

Food and beverage companies are subject to a range of federal, state, and local regulations, particularly concerning food safety regulations. Complying with these complex regulations and the associated costs, 3rd party audits, labeling requirements, and inspection routines, is proportionally a heavier burden for smaller processors than it is for larger, better-established firms. Although there are many agencies and organizations (such as ODA, Business Oregon, the Oregon Food Innovation Center, NWFPA, and private legal firms) that offer small businesses information and advice, it is very difficult to maintain current information about all the available help resources. Many companies are unaware of services available to them, and would benefit from a more coordinated information referral system. A designated clearinghouse operated by the food and beverage industry could provide a more comprehensive and cohesive referral resource that all entities could use to refer businesses to proper subject experts best able to assist them.

Already tasked with the demanding compliance obligations associated with food safety regulations, food and beverage firms have a hard time dealing with all the other more general Oregon business regulations. Local development regulations sometimes inhibit food plant expansion and could be more standardized throughout the state. In several regions, the Road Map consultants heard stories of companies considering or actually establishing locations across state lines to avoid Oregon's stricter regulations. Disparities between Oregon state and federal policies on regulatory topics such as equipment depreciation, agricultural land inheritance, and reporting requirements, create unnecessary confusion that adds to the cost and difficulty of compliance. These problems could be substantially reduced by bringing state and federal regulations into closer congruence.

Examples of problematic Oregon-specific regulations include:

- State equipment/machinery depreciation schedules often differ from federal. Bringing these two rates into alignment would greatly simplify tax filing. Also, in terms of direct taxes on equipment, food and beverage industries need time to make a return on investment before taxes come due. (We note the existence of the Oregon Construction-in-Progress tax exemption, which probably needs wider promotion).
- Oregon's estate tax policies do not match federal standards, and should. Oregon estate taxes kick in at $1 million instead of the $5.45 million federal trigger. All assets located in Oregon

are also taxed, regardless of where the owner resides. These inconsistencies discourage passing on agricultural land to heirs, encouraging land sales instead, and strain the ability to keep large tracts of land productive.

- Oregon recent changes to its minimum wage laws will impact business costs for the industry. Incremental increases and the regional wage differences built into the law help mitigate some of these cost impacts on business. However, due to the increased cost of labor, the food and beverage industry expects to invest more heavily in technology and productivity than in labor.
- An interpretative difference among local jurisdictions has surfaced, concerning occupancy codes for grain storage at breweries and distilleries. The state can establish standardized local building and fire safety regulations in such cases. The state should fund research to formulate best practices for fire codes, wastewater treatment, and other local development requirements.
- Electrician accreditation requirements in Oregon restrict hiring opportunities in eastern Oregon and other places,[19] and have added tens of thousands of dollars to the cost of at least one food processing project.

Some regulatory improvements can be relatively simple, involving adjustments to implementation and reporting procedures rather than amendments to the regulations themselves. For instance, The Oregon Liquor Control Commission (OLCC) has fillable online forms for reporting. This is first step toward additional improvements that OLCC could make by adding more online reporting capabilities, streamlining the reporting requirements that OLCC shares with other agencies, and making aggregate data that OLCC collects available to the beverage industry for marketing purposes. Simplification and better data would save hundreds of small beverage businesses time fulfilling their reporting requirements.

Potential Strategic Initiatives

- Bring State regulations into conformity with federal regulations. Burdening Oregon's food and beverage industry with Oregon-specific rules that unnecessarily complicate doing business. Examples include depreciation schedules, tax policies and rates, minimum wage laws, energy rates, labor laws, and electrician accreditations.
- Improve the efficiency of reporting requirements and the availability of data for both governmental and private sector purposes through public investment in modern regulatory compliance systems. One example where improvements have begun but need to continue is the Privilege Tax filings with the Oregon Liquor Control Commission.
- Develop an information clearinghouse system for regulatory, financial, technical, and other informational assistance to the Oregon Food and Beverage Industry through public/private collaboration. Services would be primarily by referral, rather than duplications of established programs. This clearinghouse could be jointly supported by a number of entities, for example, Business Oregon, ODA, EDA, SBA, and others.
- Promulgate building development standards and use of reclaimed processing water that meet performance criteria but recognize unique food and beverage characteristics.

[19] Umatilla County Skilled Workforce Study, May 2016, Page 21.

PROGRAM EVALUATION METRICS

It is important to monitor and evaluate progress in implementing the Food and Beverage Industry Road Map. Tracking sales, jobs, wages, the number of establishments and location quotients are typical economic indicators used to measure industry performance. This chapter discusses recommended outcome metrics and methodologies that can be used to collect and evaluate data to understand changes in the industry, and process metrics that can be used to monitor accomplishments related to implementing strategic programs.

OUTCOME METRICS

INDUSTRY OUTPUT/SALES

Food and Beverage Industry output represents the sum value of all the economic activity within the sector. The components of the industry output include commodity inputs (including goods and services), labor income, property income, profit, and taxes. Tracking the industry output over time will identify how a particular industry performs over time. The comparison can look at absolute growth, comparing how much food processing activity has grown within a given time period, with growth in industry output across the entire economy. Industry output can also be used to look at relative growth by comparing how the growth trends in food processing within a given region compare to other states and regions, or to the country as a whole.

Industry output data is generally found in input-output modeling datasets. Sources for this data include the Bureau of Economic Analysis (national data), the IMPLAN Pro model, the REMI input-output model, the REDYN model, and the Economic Modeling Specialists Int'l (EMSI) application. In addition, the Annual Survey of Manufactures (ASM) and the Economic Census (taken once every five years) track data on value of sales. All of these measures can also be combined with employment data to track industry productivity.

Most of these sources will track the data at the county level at a minimum, while the IMPLAN, REMI, and EMSI data can also identify industry output at the ZIP code level. The ASM and Economic Census data can report findings at the city/place level, albeit with many sectors suppressed due to confidentiality restrictions.

EMPLOYMENT

Employment data represents the job effects that the food processing sector creates. Employment data represents the most direct effect on a local or regional labor force. The absolute growth and relative growth serve as indicators for how the sector is doing as a standalone measure, or in comparison to other industries and other economic regions.

Employment data is generally provided by state employment departments and the federal Bureau of Labor Statistics (BLS). In Oregon, the agencies responsible for collecting and reporting employment data are the Oregon Employment Department and Business Oregon. This data is generally available at the state and county level. Other sources of employment data include the ASM and Economic Census, which can also provide employment data at the city/place level. It should be noted that with all of these sources, the data reporting might not include all sectors due to confidential nondisclosure restrictions.

In order to track employment at a more detailed level (down to the six-digit NAICS codes), it might be necessary to use data from private vendors. These vendors, such as IMPLAN and EMSI, begin with the same baseline data and use proprietary modeling techniques to estimate the employment for the nondisclosed sectors. The EMSI employment data is also estimated down to the ZIP code level.

Average Industry Wages

The wage data represents a measure by which a particular industry might benefit workers through increased labor income and compensation. As with the other measures, the absolute growth and relative growth indicate how well the sector performs by itself, and in comparison to other sectors and economic regions. The wage data is generally reported as either an aggregate total within a particular industry, or as an average annual wage. Hourly wage data is more generally available for occupations.

Wage data generally comes from the Oregon Employment Department, and the federal Bureau of Labor Statistics. This data is available at the state and county level. In addition, the ASM and Economic Census report wage data, and have the data available at the city/place level. As with the employment data, the wage data might not be available at a detailed level due to confidential nondisclosure restrictions. Private data vendors, such as EMSI and IMPLAN, can provide wage data that uses proprietary models to estimate wages for nondisclosed sectors. The EMSI wage data is available down to the ZIP code level.

Number of Establishments

The establishment data provides an indicator for new business formation and/or business attraction for a particular area. Growth in the number of establishments provides one additional indicator of change in economic activity by highlighting entrepreneurship. Tracking the establishment data over time and combining it with the employment data can also indicate the extent to which activity is distributed across multiple new establishments or is being increasingly concentrated into larger establishments.

Establishment counts come from the Oregon Employment Department and the federal BLS, and are available at the state and county level. The ASM and Economic Census report establishment counts as well, and make the data available down to the city/place level. Private data vendors, such as EMSI and IMPLAN, can also report establishment data along with employment and wage data at a more detailed level.

Location Quotients: Statewide and Rural

The location quotient represents a measure of employment concentration for a given industry, relative to a comparison economic region. This measure is calculated by taking a particular industry's percentage of total employment, and dividing it by the industry's percentage of total employment for a comparison region. Generally, this is used to compare how a smaller region, such as a county or state, performs relative to a larger region, such as a state, MSA, or the nation.

A high location quotient (above 1.0) indicates that a specific industry in a given area has a high concentration of employment compared to the same industry within a larger region (or other comparison area). High employment concentration means that an area is more specialized in a particular type of economic activity. When combined with positive employment growth, those economic sectors with high location quotients should be regarded as the leading industries within a region.

A low location quotient (below 1.0) indicates that a specific industry has a low concentration of employment compared to the comparison region. While an area with lower employment concentration might not be as specialized in a particular economic activity, the location quotient should be interpreted in combination with other indicators, such as employment growth. An economic sector with low existing employment concentration and positive employment growth might be an emerging industry that can eventually become a leading industry.

The data sources for tracking the location quotients are the same ones that provide employment data.

PROCESS METRICS

To track overall progress in the industry, the Road Map proposes a number of traditional outcome metrics such as sales, jobs, wages, and location quotients and provides resources for this data.

However, it is also important to track successes or failures in implementing program developments. The data sources for this may need be developed from original research, as published information sources will likely not exist. Examples of process metrics include the following:

- Dollars invested in upgrading/expanding university Food and Beverage research and education facilities and programs
- Number of Food and Beverage instructional programs at high school and community college level
- Number of students enrolled in Food and Beverage educational programs
- Regulatory/tax policy changes effected for the benefit of the Food and Beverage industry
- Federal grants received for R&D/Food safety
- Number of food and beverage related projects completed by Regional Solutions Teams

APPENDIX A: Industry Survey

During February and March 2016, Moore Information conducted a survey of food and beverage firms in Oregon. The steering committee and the project team compiled a list of 1,960 individuals in the industry, representing more than 1,200 firms. On this list, 587 of the firms had at least one e-mail address for a company executive, typical the owner or CEO. Moore information sent our 497 invitations for the online survey (68 of the mail addresses bounced and 22 of the firms opted out of the survey). The invitations were signed by Patrick Criteser of Tillamook County Creamery Association and Sam Tannahill of A to Z Wineworks as co-chairs of the Food and Beverage Industry Leadership Council, and by Vince Porter, Interim Director of Business Oregon. Moore Information sent several reminders during the course of the survey, and also promoted the survey in the newsletters of the Oregon Wine Board and the Breweries Guild. Of the group receiving invitations, 87 completed the online survey, for a response rate of 17.5 percent. Moore Information also conducted 15 surveys via telephone, which resulted in a total of 102 completed surveys. In addition, 6 surveys came in from a second person (other than the business owner or CEO) at the responding companies. These surveys have not been counted in the results discussed below but will be used to help flesh out our understanding of key issues.

A number of the companies reported offering multiple types of products, resulting in 133 responses for the various industry subsectors, as shown in Table A-1. Most of this overlap occurs for firms that produce meals and snacks and therefore show up in the "Other" category, in addition their listing in the category of their primary product line. Compared to industry averages (where each establishment is assigned to only one category), the Other/ Sugar and Confectionary group appears overrepresented in the survey; but in fact many of these firms are also represented in more than one category. Fruit and vegetable processors are also overrepresented in the sample, while meat products, seafood, and beverages are underrepresented.

TABLE A-1
SURVEY RESPONSES BY PRODUCT TYPE COMPARED TO OREGON INDUSTRY TOTALS

INDUSTRY SUB-SECTOR [A]	OREGON ESTABLISH-MENTS	PERCENT	SURVEY RESPON-DENTS [B]	PERCENT
Animal food manufacturing	20	1.7%	1	0.8%
Grains and baking	252	21.3%	15	11.3%
Fruit and vegetable preserving	133	11.2%	27	20.3%
Dairy products	64	5.4%	8	6.0%
Meat products	97	8.2%	3	2.3%
Seafood products	48	4.1%	3	2.3%
Beverages	379	32.0%	24	18.0%
Other/Sugar and confectionary	191	16.1%	40	30.1%
Other	NA	NA	12	9.0%
Total	1,184	100.0%	133	100.0%

[a] Merchant wholesalers have been included along with food processors in the relevant industry subsector groups. Statewide figures do not include food machinery products or glass manufacturing.

[b] The total survey sample is 102 firms. Some firms produce multiple kinds of products.

Of the responding firms, 53 percent identified as food processors and 20 percent as beverage manufacturers. Supplier companies comprised 16 percent of respondents, and ingredients

manufacturers were 12 percent. Growers and fresh food packers were a combined 13 percent, and 8 percent identified as distributors. The salient survey results are discussed in the Survey Summary section below, followed by more detailed discussion for each of the major industry subsectors.

OVERALL SURVEY SUMMARY

RESPONDENT SAMPLE CHARACTERISTICS

Forty-three percent of the firms produce packaged products, while 35 percent offer fresh food and 24 percent provide frozen products. (Firms may produce multiple product types). Twelve percent of the firms provide dried products, and 10 percent canned. Nearly half of the firms offer organic products.

Eighty-five percent of the firms are headquartered in Oregon, and 57 percent sell only to domestic markets. Of those that export internationally, 31 percent sell to Canada, 21 percent to Asia, 16 percent of Mexico and Latin America, and 14 percent sell in Europe.

Seventy-five percent of all the firms have just one facility in Oregon, while 7 percent operate 5 or more facilities. Sixty-four percent have 49 or fewer full-time employees.

GROWTH PROSPECTS

Eighty percent of the firms have experienced growth over the past three years, and 95 percent expect further growth over the next five years [Q's. 11-12]. Eighty percent of the firms expect to expand existing product lines [Q.30], while 77 percent expect to develop new products [Q.31]. About half of this expansion would be for domestic markets, and half for both export and domestic.

The factor most affecting expansion potential is the development of better distribution channels [Q.s 32-38]. All of the other factors tested received more neutral or mixed responses, including: access to greater agricultural supplies; more research and development; better transportation systems; improved utility infrastructure; and more land availability and international market competition. However, larger firms tended to place more emphasis on these factors than did smaller firms, although smaller firms see research and development capacity as a greater industry strength than do larger firms.

MARKETING [Q'S. 40-44]

Forty-three percent of the firms participate in cooperative marketing efforts, but 57 percent do not. Of those who do, 82 percent find the co-op marketing arrangements satisfactory. About 55 percent of the firms feel that the Oregon brand is strong in the national market, while 39 percent feel it is strong overseas. Seventy-nine percent agree that a strong brand would benefit their products. Forty-five percent of the firms agree that increased tourism marketing would improve their sales.

WORKFORCE [Q. 39]

Fifty-two percent of the respondents consider the cost of labor as their most pressing workforce issue. A shortage of workers with technical skills was second at 45 percent, followed by a lack of soft skills (32 percent), and the lack of senior management personnel (14 percent).

INDUSTRY STRENGTHS AND WEAKNESSES [Q'S. 13-30]

Oregon food processors are generally happy with the quality, cost, and availability of agricultural commodities to support their production. As noted above, improvements in these factors were not identified as critical to future expansion. Consistent with the workforce input above, the cost of labor was considered the most disadvantageous factor. Other factors received more neutral responses, including adequacy of transportation infrastructure; access to capital; and energy rates and costs. Research and development capacity was valued more highly by smaller firms than by the large ones, which likely have more in-house research capacity.

INDUSTRY BARRIERS AND THREATS [Q'S. 21-29]

About half of the responding firms felt that food safety regulations represent a threat, while half did not. However, other state and federal regulations were seen as a bigger threat by a majority of the respondents, although the lack of regulatory coordination was not considered a problem by the

majority of respondents. The prospect of increased taxes was cited as the biggest threat among all the factors. Other factors, including local regulations, changes in consumer demand, lower-cost competitors, gaps in supply chains, and consolidation of national distribution networks, all received neutral overall responses.

Government and Industry Collaboration [Q's. 45-50]

This portion of the survey included many open-ended questions, and the reader is encouraged to review the responses to Questions 45-47 to see the variety of government programs referenced. Despite the neutral response to *lack of regulatory coordination* under Industry Threats above, 65 percent agreed that there would be value in creating a one-stop service to coordinate multiple regulatory agencies at the state level [Q.48].

Sixty-three percent of the respondents reported participating in industry-wide collaborative efforts [Q. 49]. Of those who do not, 16 percent cited a lack of time, and 14 percent a lack of awareness about these efforts. Fifty-nine percent agree that there is a need for better coordination among the various industry associations [Q. 50]. Again, the reader is encouraged to review the open-ended responses to this question to see the types of program initiatives that were suggested.

The following sections focus on the survey responses by the separate industry subsectors.

GRAINS AND BAKING (NAICS 3112 & 3118)

Industry Group Characteristics

This group includes the following detailed food product categories:

- Flour and grain milling
- Oils and fats
- Breads, cookies, and tortillas
- Frozen pies and pastries

This industry group is estimated to include 20 percent of Oregon food and beverage establishments (252 firms) and 17 percent of total industry employment. Employment growth was 30 to 35 percent between 2004 and 2014, and is expected to grow 11 percent more by 2022. Combined output was $2.6 million in 2014, third largest of the Oregon food and beverage subsectors, and close behind the beverage industry.

This sector represented 15 percent of the firms responding to the survey. Among this set of producers, 38 percent sell their products fresh, 24 percent frozen, 19 percent packaged, and 14 percent dried. About half offer organic products. Most respondents are processors themselves, with 20 percent also supplying others. Most respondents send product outside of Oregon, with only 8 percent limited to Oregon.

Few serve international markets (1 percent). Over 90 percent are headquartered in Oregon. Sixty percent are small firms (under 50 employees), and about 75 percent operate out of single facilities.

Growth Opportunities

Consistent with all trend data, 73 percent of the firms experience an upward growth trend over the past three years, and 100 percent expect growth over the next five years. For all of the firms, the future expansion will involve both expanding existing product lines and developing new ones. Respondents see expansion export opportunities in domestic and international markets, even though currently most are only operating in the U.S.

The factors that will most affect growth opportunities for this industry are accessibility to more agricultural products, better distribution channels; and better transportation systems. Over half the firms also consider increased research and development as important to their expansion.

Marketing

Only a third of the firms participate in cooperative marketing efforts; and of those, two-thirds find the efforts to be satisfactory. Forty-seven percent believe the Oregon brand is strong domestically, but 53 percent of those in international markets do not believe the brand is strong there. More than 70 percent agree overall that a stronger brand would benefit their industry. Two-thirds said they benefit from tourism marketing for Oregon.

Workforce

More than half of this industry group considers the labor cost as the number-one workforce issue, while shortage of technical skills and workers with adequate soft skills were cited by 33 and 27 percent each. Thirteen percent were concerned about the lack of senior management staff and the remaining 7 percent cited lack of entry level labor or the minimum wage. Respondents in this industry tracked very closely with all food industry respondents.

Industry Strengths, Weaknesses, and Threats

The quality of agricultural commodities was cited as a major advantage by this industry group. The cost and availability of commodities are also seen as advantages overall by half of the respondents. Seventy-three percent of those who expressed an opinion about research and development capacity considered this as an industry advantage in Oregon. This group cited transportation infrastructure as the main disadvantage hampering their industry.

The biggest threats identified by this industry group are increased taxes, food safety regulations, and changing consumer demand. Supply chain and distribution issues were low on the threat scale for this industry.

Industry definitions

NAICS 3112: This industry group comprises establishments primarily engaged in milling of flour or meal from grains or vegetables, manufacturing of malt, wet milling of corn and other vegetables, crushing of oilseeds and tree nuts, and manufacturing breakfast cereals. This industry group also includes preparing flour mixes or doughs from flour milled in the same establishment; milling, cleaning, and polishing rice; refining and/or blending vegetable oils; manufacturing shortening and margarine; and blending purchased animal fats with vegetable fats.

NAICS 3118: This industry group comprises establishments primarily engaged in (1) baking bread and other bakery products on the premises, not for immediate consumption, fresh or frozen; (2) manufacturing cookies, crackers, and dry pasta; and (3) manufacturing of tortillas. Also included here are manufacturers that produce frozen cakes, pies, donuts, and other pastries; and flour and mixed dough.

FRUITS AND VEGETABLES (NAICS 3114)

Industry Group Characteristics

Because the survey divided this industry group into two categories, the following analysis will reflect responses for the following when separated:

- Vegetable processors
- Fruit processors

This industry group is estimated to include almost 9 percent of food and beverage industry establishments in Oregon, and 27.5 percent of total industry employment. However, this sector represented 27 percent of firms responding to the survey. The survey sample in this group by commodity included 93 percent in food processing (vegetables) and 85 in food processing (fruits and nuts). 36 percent of vegetable processors provided their product as fresh, 50 percent as frozen, 29 percent as dried, and 21 percent as canned. 46 percent of fruit processors provided their product as

fresh, 54 percent as frozen, 31 percent as dried, and 31 percent as canned. Seventy-one percent of vegetable processors offered organic products; 62 percent of fruit processors offered organic products.

Vegetable processors serve a wide range of markets, with 64 percent in international markets, 64 percent in Western U.S., and 64 percent in Other U.S. Similarly, 69 percent of fruit processors serve international markets, 69 percent Other U.S., and 62 percent Western U.S.

Seventy-nine percent of vegetable processors and 85 percent of fruit processors are based in Oregon.

Growth Opportunities

Over the last three years, 71 percent of vegetable processors and 85 percent of fruit processors have experienced steady growth. Ninety-three percent of vegetable processors and 100 percent of fruit processors expect continued sales growth over the next five years. Fifty-seven percent of vegetable processors and 77 percent of fruit processors expect to expand their existing product lines, with 54 percent of vegetable processors and 73 percent of fruit processors expecting to expand in both domestic and export markets.

The factors that will most affect growth opportunities are access to a greater supply of agricultural commodities, better distribution channels, and better transportation systems. Thirty-six percent of vegetable processors and 62 percent of fruit processors see increased research and development as important to their expansion, and 43 percent of vegetable processors and 62 percent of fruit processors expect international competition to affect their ability to expand.

Marketing

Thirty-six percent of vegetable processors and 38 percent of fruit processors participate in some form of cooperative marketing within their industry, with 80 percent finding the efforts to be satisfactory. Seventy-one percent of vegetable processors and 69 percent of fruit processors believe the Oregon brand is strong nationally, and more than two-thirds believe the Oregon brand is also strong internationally. Nearly 70 percent believe that they would benefit from an even stronger Oregon brand. Only 30 percent derive benefit from tourism marketing.

Workforce

Seventy-nine percent of vegetable processors and 62 percent of fruit processors regard labor cost as the leading workforce issue, followed by shortage of qualified technical workers (57 percent vegetable, 46 percent fruit), and availability of workers with soft skills (36 percent vegetable, 31 percent fruit). Twenty-three percent of fruit processors also mentioned a shortage of qualified senior staff.

Industry Strengths, Weaknesses, and Threats

The quality and availability of agricultural commodities were both cited as major advantages. The cost of commodities is generally seen as an advantage by 50 percent of vegetable processors and 38 percent of fruit processors; however, it is considered a disadvantage by 21 percent of vegetable processors and 38 percent of fruit processors. Reviews were mixed for research and development, with 57 percent of vegetable processors considering it a disadvantage, and 38 percent of fruit processors considering it an advantage. Factors regarded as disadvantages in this industry included t labor cost and transportation infrastructure. Interestingly, access to capital was considered an advantage by 29 percent of vegetable processors and 46 percent of fruit processors, with only 14 percent of vegetable processors and 15 percent of fruit processors considering it a disadvantage. Opinion was split on whether energy costs and rates were an advantage or disadvantage.

The biggest threats identified by this industry group are increased taxes, food safety regulations, and federal and state regulations. Sixty-four percent of vegetable processors and 68 percent of fruit processors believe that food safety regulations are a major threat. Lack of regulatory coordination and changes in consumer demand are not perceived to be major threats. However, 47 percent of vegetable processors and 69 percent of fruit processors believe that lower cost competitors are a major threat.

DAIRY PRODUCTS (NAICS 3115)

INDUSTRY GROUP CHARACTERISTICS

This industry group is estimated to include almost 3 percent of food and beverage industry establishments and 7.2 percent of total industry employment. However, this sector represented 8 percent of firms responding to the survey. The survey sample in this group by commodity included 88 percent in food processing. Dairy processors provided 50 percent of their product as fresh, 38 percent frozen, and 50 percent packaged. Thirty-eight percent offered organic products.

Dairy processors principally serve the Western U.S. (100 percent), and 75 percent serve domestic markets only. All dairy processors are based in Oregon. Seventy-five percent of dairy processors operate only one plant in Oregon, with 25 percent operating from 2 to 4 plants. Sixty-three percent of dairy processors employ 1 to 49 employees, and 25 percent have more than 50 employees.

GROWTH OPPORTUNITIES

Over the last three years, 88 percent of dairy processors have experienced steady growth. One-hundred percent of dairy processors expect continued sales growth over the next five years. Eighty-five percent of dairy processors expect to expand their existing product lines, with 75 percent of dairy processors expecting to expand in domestic markets and 25 percent expecting to expand in both domestic and export markets. Seventy-five percent of dairy processors are also likely to develop new products.

Dairy processors seem generally optimistic and did not, as a group, single out any one factor as a limit on growth. Among the factors they think might affect growth opportunities are access to a greater supply of agricultural commodities, increased research and development, better distribution channels, and better transportation systems. However, none of these factors were cited by more than 38 percent of survey respondents.

MARKETING

Sixty-three percent of dairy processors participate in some form of cooperative marketing within their industry, with 80 percent finding these efforts to be satisfactory. Feelings are mixed on the Oregon brand; fifty percent of dairy processors believe the Oregon brand is strong nationally, but 50 percent do not. The same holds true for the Oregon brand's strength internationally, with 50 percent feeling that it is strong, and 50 percent feeling it is not. Eighty-six percent believe that they would benefit from an even stronger Oregon brand. Only 38 percent believe they benefit from tourism marketing.

WORKFORCE

Dairy producers were evenly divided on the question of prime workforce issue, with 50 percent citing a shortage of qualified technical workers, and 50 percent saying the availability of workers with soft skills. Cost of labor followed with a 38 percent consensus.

INDUSTRY STRENGTHS, WEAKNESSES, AND THREATS

The quality and availability of agricultural commodities were both cited as major advantages. The cost of commodities is generally seen as an advantage by 38 percent of dairy processors; however, 25 percent consider commodity costs a disadvantage. Reviews were mixed for research and development, which 38 percent of dairy processors consider an advantage, but 38 percent consider a disadvantage. Other factors viewed as disadvantageous included the cost of labor, transportation infrastructure, and cost of capital. Opinion was evenly split on whether energy costs and rates were an advantage or disadvantage.

The biggest threats identified by this industry group are increased taxes, federal and state regulations, and consolidation of national distribution networks. Only 38 percent of dairy processors believe that food safety regulations are a major threat. The lack of regulatory coordination, lower cost competitors, and changes in consumer demand are not perceived to be major threats.

MEAT PRODUCTS (NAICS 3116)

Industry Group Characteristics

This industry group is estimated to include over 5 percent of food and beverage industry establishments and 4.6 percent of total industry employment. However, this sector represented only 3 percent of firms responding to the survey. This group of respondents included 67 percent in food processing and 33 percent identifying as grower/producers. Meat processors reported providing 33 percent of their product as fresh, 33 percent frozen, and 67 percent dried. Sixty-seven percent offer organic products.

Meat processors principally serve the Western U.S. (100 percent), Other U.S. (67 percent), and 67 percent serve domestic markets only. All meat processors are based in Oregon. Thirty-three percent of meat processors operate only one plant in Oregon, with 67 percent operating from 2 to 4 plants. Thirty-three percent of meat processors employ 1 to 49 employees, and 67 percent have more than 50 employees.

Growth Opportunities

Over the last three years, 100 percent of meat processors have experienced steady growth. Sixty-seven percent of meat processors expect continued sales growth over the next five years. One hundred percent of meat processors expect to expand their existing product lines, with 67 percent of meat processors expecting to expand in both domestic and export markets. One hundred percent of meat processors are also likely to develop new products.

Meat processors seem generally optimistic and do not cite any one factor for limiting potential growth. The factors that could affect growth opportunities are access to a greater supply of agricultural commodities, increased R&D, better distribution channels, and better transportation systems. However, none of these factors were cited by more than 33% of survey respondents.

Marketing

Sixty-seven percent of meat processors participate in some form of cooperative marketing within their industry, with 100 percent finding the efforts to be satisfactory. Sixty-seven percent of meat processors believe the Oregon brand is strong nationally, as well as internationally. One hundred percent believe that they would benefit from an even stronger Oregon brand.

Workforce

Sixty-seven percent of meat processors see availability of workers with soft skills as the number one workforce issue, followed by cost of labor (38 percent), lack of technical skills (33 percent), and shortage of senior staff (33 percent).

Industry Strengths, Weaknesses, and Threats

The quality and availability of agricultural commodities were both cited as major advantages. Reviews were mixed for research and development as 33 percent of meat processors saw it as an advantage, but 33 percent of meat processors considered it a disadvantage. Industry disadvantages included the cost of labor, transportation infrastructure, and access to capital.

The biggest threats identified by this industry group are increased taxes, Federal and State Regulations, and Local Regulations. Only 33 percent of meat processors believe that food safety regulations are a major threat. The lack of regulatory coordination, lower cost competitors, and the changes in consumer demand are not perceived to be major threats.

SEAFOOD (NAICS 3117)

This industry group comprises establishments primarily engaged in one or more of the following: (1) canning seafood (including soup); (2) smoking, salting, and drying seafood; (3) eviscerating fresh fish by removing heads, fins, scales, bones, and entrails; (4) shucking and packing fresh shellfish; (5) processing marine fats and oils; and (6) freezing seafood. Establishments known as "floating factory

ships" that are engaged in the gathering and processing of seafood into canned seafood products are included in this industry.

Industry Group Characteristics

This small industry comprises 1.8 percent of Oregon's food and beverage industry establishments and about 3 percent of total industry employment. Because of Oregon's coastal location, seafood processing is a natural. Industry output grew 155 percent over the last decade in Oregon, a subsector growth rate second only to the state's beverage industry.

Three firms responded to the survey, or about 13 percent of the state's 23 seafood firms. This small sample size makes it difficult to confidently infer industry-wide opinions. Two of the three respondents have over 50 employees. Two are headquartered in Oregon. All three serve markets in the Western U.S., U.S., and/or international markets with a wide variety of seafood, including fresh, dried, frozen, canned, and packaged. Only one respondent has a single facility in the state; the other two have multiple plants.

Growth Opportunities

Seafood joins the vast majority of food processing industries with an upward growth trend over the past three years, and expected growth over the next five years. Seafood employment has grown 20 percent between 2004 and 2014. One respondent expected stable sales in the past to extend to the future; while the other two respondents expect to expand existing product lines and develop new ones.

The factors that most affect growth opportunities for this industry are transportation infrastructure and international competition.

Marketing

The two firms participating in joint marketing efforts find them satisfactory. The seafood companies have strong international brand strength, but could be even stronger with an Oregon brand. Tourism promotion is unlikely to benefit the industry.

Workforce

The industry would like improvements in workers' technical and soft skills. Keeping cost down is also relevant.

Industry Strengths, Weaknesses and Threats

The small sample size limits confidence in conclusions. However:

Advantages appear to be product quality and the availability of the raw product. The major disadvantage appears to be the aforementioned transportation infrastructure.

The main threat appears to be the threat of increased taxes.

BEVERAGES 3121

Industry Group Characteristics

This group includes the following detailed food product categories:

- Beer
- Wine
- Other alcoholic beverages
- Water and ice
- Juice and cider

The beverage group is estimated to include 30.5 percent of all food and beverage industry establishments and 14 percent of total industry employment. These characteristics indicate a capital-intensive industry. Employment growth was 91 percent between 2004 and 2014, with the strongest

growth in the entire food and beverage sector (651 percent). With $2.7 billion in output, the beverage subsector placed second only to fruit and vegetable processing. Much of the expansion has been international. Future growth is expected to be 11 percent by 2022.

25 percent of firms responding to the survey are in this beverage sector (25). Significant differences between beverage types will be noted. Beverage products come in many forms, but packaged product dominates (76 percent), followed by 28 percent fresh. Thirty-two percent of these firms offer organic products.

56 percent of the firms serve only domestic markets, and 44 percent serve international markets. Eighty-four percent sell outside of Oregon. All but one of the respondent are headquartered in Oregon. Only two of the beer companies have more than 50 employees.

Growth Opportunities

With but one exception, all of the firms in this group grew over the past three years and also expect growth over the next five years. For nearly all of the firms, the future expansion will involve expanding existing product lines and developing new ones. Forty percent expect to expand into international markets.

The primary factor that will most affect growth opportunities for this industry is better distribution channels for product, although the beer and juice respondents also noted the importance of access to product and transportation systems. Consistent with the fruit and vegetable sector, the two juice firms also regard increased research and development as important to their expansion and expect that international market competition will affect their ability to expand.

Marketing

Seventy percent of the firms participate in cooperative marketing efforts; of those, over half find the efforts to be satisfactory. Sixty percent believe their brand is strong domestically but only half believe it is strong internationally. All but one respondent agree that a stronger Oregon brand would benefit the industry. About 74 percent agree that tourism marketing for Oregon would benefit them.

Workforce

Mirroring views of the food and beverage sector as a whole, 57 percent of the beverage subsector considers the cost of labor to be the number-one workforce issue, while shortage of technically skilled workers (48 percent) and workers with adequate soft skills (30 percent) are also citied. Thirteen percent mentioned concern about a lack of senior management staff.

Industry Strengths, Weaknesses and Threats

Consistent with other industries, the quality and availability of agricultural commodities were both cited as major advantages by this industry group (83 percent and 74 percent respectively). The cost of commodities is also considered an advantage by 61 percent of respondents. Transportation infrastructure also seems advantageous for 43 percent. Juice and water respondents cited access to capital and energy as advantages.

The biggest threat identified by this industry group is increased taxes. No other strong threats emerged except among four beer firms that ranked supply chain gaps highly. Lack of regulatory coordination was not identified as an important threat.

Industry Definition

This industry group comprises establishments primarily engaged in: manufacturing of soft drinks and ice, and purifying and bottling water; manufacturing brewery products; winery products; and distillery products. Also included is (1) artificially carbonated water; (2) the brewing of beer, ale, malt liquors, and nonalcoholic beer; (3) growing grapes, and the manufacturing of wine and brandy, or making of wine or brandy from purchased materials, and the blending of wines and brandies; and (4) the distilling of potable liquors (except brandies) and the blending of liquors and other ingredients.

MISCELLANEOUS FOODS (NAICS 3119)

INDUSTRY GROUP CHARACTERISTICS

This group includes the following detailed food product categories:

- Roasted nuts and peanut butter
- Other snack food
- Coffee and tea manufacturing
- Flavoring syrups and concentrates
- Mayonnaise, salad dressings, and sauces
- Spices and extracts
- Perishable prepared foods
- All other miscellaneous

This industry group is estimated to include 10 percent of Oregon's food and beverage industry establishments and 12 percent of total industry employment. However, this sector represented 40 percent of firms responding to the survey. The survey sample in this group included more than half food processors, and about ten percent each of suppliers, ingredients manufacturers, growers, and distributors. Thirty-five percent of their products are packaged, 20 percent each are fresh or frozen, 14 percent are dried, and 11 percent are canned. More than 70 percent offer organic products.

About half of the firms serve only domestic markets, but two-thirds of those operate outside of Oregon. More than 80 percent are headquartered in Oregon.

GROWTH OPPORTUNITIES

Consistent with the trend data for the entire food and beverage group, 80 percent of the firms in this subsector experienced an upward growth trend over the past three years, and 100 percent expect growth over the next five years. For nearly all of the firms, the future expansion will involve both expanding existing product lines and developing new ones. Interestingly, several of the firms see expansion opportunities in export markets, even though they are currently only operating in the U.S.

The factors that will most affect growth opportunities for this industry are access to more agricultural products, better distribution channels, and better transportation systems. About half the firms regard increased research and development as important to their expansion, and about half also expect that international market competition will affect their ability to expand.

MARKETING

Forty percent of the firms participate in cooperative marketing efforts, and of those, two-thirds find the efforts to be satisfactory. Sixty percent believe the Oregon brand is strong domestically, but nearly 80 percent of those in international markets do not believe the brand is strong there. More than 80 percent overall agree that a stronger brand would benefit the industry. About 40 percent benefit from tourism marketing for Oregon.

WORKFORCE

In terms of workforce issues, 31 percent of this industry group sees the cost of labor as the number-one workforce issue, while shortage of technical skills and workers with adequate soft skills are citied by 26 percent each. 12 percent were concerned about the lack of senior management staff and the remaining 4 percent cited lack of entry level labor or the minimum wage.

INDUSTRY STRENGTHS, WEAKNESSES AND THREATS

The quality and availability of agricultural commodities were both cited as major advantages by this industry group. The cost of commodities is also seen as an advantage overall, but 38 percent of those

who responded to this question see it as a disadvantage. Seventy-three percent of those who expressed an opinion about research and development capacity saw it as an industry advantage in Oregon. Perceived industry disadvantages include the cost of labor and access to capital, although fewer than half of the firms expressed an opinion on capital availability and 40 percent of those saw it as an advantage. Opinion was split on whether transportation infrastructure or energy costs are benefits or liabilities for this industry.

The biggest threats identified by this industry group are increased taxes, local regulations, and state and federal regulations other than those for food safety. About 40 percent of the respondents see food safety regulations as a threat, while 60 percent do not. The lack of regulatory coordination is not identified as an important threat. Also, changes in consumer demand do not constitute a threat. It appears the businesses are confident they can meet changing consumer interests. The responses are divided fairly evenly concerning perceived threat from low cost competitors, supply chain gaps, and national distribution channel consolidations. These finding are consistent with the factors that were identified to promote growth and expansion, which included improved distribution systems and better transportation.

MOORE INFORMATION
OPINION RESEARCH • STRATEGIC ANALYSIS

Oregon Food and Beverage Industry Survey (N=102)
FEBRUARY 29-MARCH 7, 2016

Hello, this is (FIRST AND LAST NAME). As you may have heard, we are conducting a survey is sponsored by the Oregon Food and Beverage Leadership Council ("OFBLC") in partnership with the Northwest Food Processors Association, Oregon Business Council, Oregon Business Association and Business Oregon, the state's economic development department.

The purpose of the survey is to hear from industry leaders like yourself about how best to accelerate growth in Oregon's food and beverage manufacturing industry. Your input is critical to ensure that an industry roadmap analysis targets the right growth opportunities and issues over the next 5-10 years.

IF NA/REFUSED: Your feedback is very important – is there another time we could schedule this week to give you a call back to complete the survey? Or, you also have the option to complete the survey online – we can just email you a link to the survey online. Is that something you'd be able to do? IF YES RECORD EMAIL ADDRESS, NAME AND COMPANY; SEND LINK VIA EMAIL

Company Overview

1. First, which of the following best describes your company? (READ 1-9, ACCEPT MULTIPLE RESPONSES)

Food processor	48%
Beverage manufacturer	20%
Ingredients manufacturer	10%
Supplier to food & beverage companies	8%
Distributor	8%
Grower	8%
Fresh food packer	4%
Testing and measurement service	1%
Other? (Specify)	
Food manufacturer	3%
Retailer/restaurant	2%
Service provider to food and beverage companies	1%
Recruiter	1%
Pallet manufacturer	1%
Education	1%
Dietary supplement manufacturer	1%
Contract packaging	1%
Chocolate manufacturer	1%
Trade association	1%
Label manufacturer	1%
Supplier of 190 and 200-proof alcohol	1%

Farmstead Cheese	1%

Food process engineering consulting firm	1%
Livestock pellet manufacturer	1%
Ice cream manufacturer	1%
Ice producer	1%
Cattle ranch	1%
Media	1%

2. What is your company's primary product(s)? (READ 1-16, ACCEPT MULTIPLE RESPONSES)

Baked goods/grain products	15%
Vegetables	14%
Fruits/nuts	12%
Snacks	10%
Dairy products	8%
Meals	7%
Wine	6%
Beer	6%
Other alcohol	6%
Coffee	4%
Meat products	3%
Seafood	3%
Tea	2%
Juice	2%
Cider	1%
Other? (Specify)	
Equipment/packaging	5%
Spice/seasoning	3%
Salads, dips, side dishes, tortillas	3%
Services	3%
Water	2%
Sauces	2%
Assist clients in all these industries	1%
Soups/broths/non-dairy beverages	1%
Pet food and freeze-dried treats	1%
Non-dairy frozen desserts	1%
Non-alcoholic beverages	1%
Fruit and vegetable flavors and ingredients, allium pastes	1%
Eggs	1%
Dietary fiber and herbal supplements	1%
Confectionary mint	1%
Cacao	1%
Blue-green algae ingredients and supplements	1%
Liquid fermentation cultures	1%
Labels	1%
Herbs	1%
Ice	1%
Protein/tofu	1%

3. Next, do you offer organic products?

Yes	48%
No	49%
NA	3%

4. Is your product(s) primarily, (READ 1-5)

Fresh	35%
Frozen	24%
Dried	12%
Canned	10%
Packaged	43%
NA	11%

5. Next, what is your principal product market(s)? (READ 1-9. ACCEPT MULTIPLE RESPONSES)

Oregon only	15%
Western U.S. (including Rocky Mountain States)	84%
Other U.S.	58%
Domestic only	**57%**
Total international	**43%**
Africa	2%
Asia	21%
Canada	31%
Europe	14%
Mexico/Latin America	16%
Other international	15%

6. Are your company headquarters in Oregon?

Yes	85%
No	15%

6a. IF NOT OREGON: Where are your headquarters located? (READ 1-5)

Western U.S.	27%
Midwestern U.S.	33%
Southern U.S.	13%
Northeastern U.S.	13%
International	13%

6/6A.

Oregon	85%
Western U.S.	4%
Midwestern U.S.	5%
Southern U.S.	2%

Northeastern U.S.	2%
International	2%

7. How many facilities do you operate in Oregon? (RECORD CATEGORY)

One facility	75%
2-4 facilities	19%
5 or more facilities	7%

Next, how many employees do you employ in Oregon, in each of the following categories?

8. Full-time employees in Oregon

0 employees	1%
1-49 employees	64%
50+ employees	35%

9. Part-time employees in Oregon

0 employees	18%
1-49 employees	43%
50+ employees	9%
NA	30%

10. Seasonal employees in Oregon

0 employees	31%
1-49 employees	26%
50+ employees	11%
NA	31%

Industry Assessment

11. Over the past three years, have your company sales (READ 1-3)

Grown	80%
Remained stable	16%
Declined	4%

12. Over the next five years, do you expect sales in your product line(s) produced in Oregon to (READ 1-3)

Grow	95%
Remain stable	4%
Decline	--
NA	1%

Industry Strengths and Weaknesses

INTRO Q13-20
Now let's try something else. Here are some factors that may affect your ability to do business in Oregon. Using a seven-point scale, please rate each of the following as an advantage or disadvantage, where a "1" is a major disadvantage and a "7" is a major advantage.

Scale
1. 1 (major disadvantage)
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7 (major advantage)
8. NA

13. Quality of agricultural commodities

1	--
2	1%
3	6%
1-3 - Total disadvantage	**7%**
4 - Neutral	15%
5-7 - Total advantage	**66%**
5	9%
6	20%
7 - Major advantage	37%
NA	13%
Median score	**6.0**

14. Cost of agricultural commodities

1 - Major disadvantage	1%
2	7%
3	13%
1-3 - Total disadvantage	**21%**
4 - Neutral	19%
5-7 - Total advantage	**44%**
5	16%
6	16%
7 - Major advantage	13%
NA	17%
Median score	**5.0**

15. Availability of agricultural commodities

1 - Major disadvantage	2%
2	2%
3	9%
1-3 - Total disadvantage	**13%**
4 - Neutral	15%
5-7 - Total advantage	**59%**
5	12%
6	17%
7 - Major advantage	30%
NA	14%
Median score	**6.0**

16. Product research and development capabilities

1	--
2	2%
3	16%
1-3 - Total disadvantage	**18%**
4 - Neutral	21%
5-7 - Total advantage	**36%**
5	13%
6	16%
7 - Major advantage	8%
NA	25%
Median score	**4.0**

17. Cost of Labor

1 - Major disadvantage	14%
2	15%
3	19%
1-3 - Total disadvantage	**47%**
4 - Neutral	21%
5-7 - Total advantage	**25%**
5	7%
6	5%
7 - Major advantage	13%
NA	8%
Median score	**3.0**

18. Adequacy of transportation infrastructure

1 - Major disadvantage	5%
2	9%
3	15%
1-3 - Total disadvantage	**28%**
4 - Neutral	30%
5-7 - Total advantage	**30%**
5	13%
6	14%
7 - Major advantage	4%
NA	11%
Median score	**4.0**

19. Access to financial capital

1 - Major disadvantage	8%
2	7%
3	9%
1-3 - Total disadvantage	**24%**
4 - Neutral	29%
5-7 - Total advantage	**23%**
5	8%
6	8%
7 - Major advantage	7%
NA	25%
Median score	**4.0**

20. Energy rates and costs

1 - Major disadvantage	4%
2	6%
3	13%
1-3 - Total disadvantage	**23%**
4 - Neutral	29%
5-7 - Total advantage	**40%**
5	18%
6	16%
7 - Major advantage	7%
NA	8%
Median score	**4.0**

Industry Barriers and Threats

INTRO Q21-29
Now, here are some possible threats to the viability of firms in your industry. Using a seven-point scale where a "1" is no threat at all and a "7" is a factor that poses an extreme threat, what number between one and seven best describes the level of threat you think each poses to your specific product line(s)?

Scale
1. 1 (no threat at all)
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7 (extreme threat)
8. NA

21. Food safety regulations

1 - No threat at all	13%
2	11%
3	17%
1-3 - Total not a threat	**40%**
4 - Neutral	15%
5-7 - Total threat	**39%**
5	19%
6	14%
7 - Extreme threat	7%
NA	6%
Median score	**4.0**

22. Other federal or state regulations

1 - No threat at all	5%
2	9%
3	12%
1-3 - Total not a threat	**25%**
4 - Neutral	19%
5-7 - Total threat	**49%**
5	20%
6	17%
7 - Extreme threat	13%
NA	7%
Median score	**5.0**

23. Local regulations

1 - No threat at all	9%
2	14%
3	10%
1-3 - Total not a threat	**32%**
4 - Neutral	19%
5-7 - Total threat	**39%**
5	14%
6	17%
7 - Extreme threat	9%
NA	10%
Median score	**4.0**

24. Lack of regulatory coordination

1 - No threat at all	9%
2	16%
3	12%
1-3 - Total not a threat	**36%**
4 - Neutral	25%
5-7 - Total threat	**25%**
5	12%
6	8%
7 - Extreme threat	5%
NA	14%
Median score	**4.0**

25. Increased taxes

1 - No threat at all	5%
2	3%
3	7%
1-3 - Total not a threat	**15%**
4 - Neutral	13%
5-7 - Total threat	**65%**
5	19%
6	19%
7 - Extreme threat	27%
NA	8%
Median score	**5.5**

26. Changes in consumer demand

1 - No threat at all	5%
2	19%
3	17%
1-3 - Total not a threat	**40%**
4 - Neutral	27%
5-7 - Total threat	**28%**
5	16%
6	9%
7 - Extreme threat	4%
NA	4%
Median score	**4.0**

27. Lower cost competitors

1 - No threat at all	7%
2	14%
3	15%
1-3 - Total not a threat	**35%**
4 - Neutral	22%
5-7 - Total threat	**41%**
5	16%
6	15%
7 - Extreme threat	11%
NA	2%
Median score	**4.0**

28. Gaps in supply chain or key services and supplies

1 - No threat at all	5%
2	19%
3	15%
1-3 - Total not a threat	**38%**
4 - Neutral	25%
5-7 - Total threat	**30%**
5	16%
6	9%
7 - Extreme threat	6%
NA	7%
Median score	**4.0**

29. Consolidation of national distribution networks

1 - No threat at all	11%
2	11%
3	14%
1-3 - Total not a threat	**35%**
4 - Neutral	21%
5-7 - Total threat	**32%**
5	13%
6	16%
7 - Extreme threat	4%
NA	12%
Median score	**4.0**

Industry Outlook and Opportunities

Thinking now about the future of your organization, using a seven point scale where a "1" means this is not likely at all to occur in your product line(s) and a "7" means it is very likely to occur in your product line(s), please tell me what number between one and seven best describes the likelihood of each of the following occurring in your product line(s) over the next five years.

30. Expansion of your existing product line(s)

1 - Not likely at all	6%
2	2%
3	4%
1-3 - Total not likely	**12%**
4 - Neutral	7%
5-7 - Total likely	**80%**
5	13%
6	16%
7 - Very likely	52%
NA	1%
Median score	**7.0**

30a. Is this expansion opportunity in domestic markets, export markets or both?

Domestic	51%
Export	1%
Both	48%

31. Development of new products

1 - Not likely at all	3%
2	4%
3	5%
1-3 - Total not likely	**12%**
4 - Neutral	10%
5-7 - Total likely	**77%**
5	14%
6	15%
7 - Very likely	49%
NA	1%
Median score	**6.0**

31a. Are these development opportunities in domestic markets, export markets, or both?

Domestic	52%
Export	--
Both	48%

INTRO Q32-38
Moving on, now here is a list of factors that could aid in acceleration of market growth for your company. Using a 7-point scale where a "1" means no impact on growth and a "7" means high impact on growth, please tell me what number between one and seven best describes the level of impact each the following could have in accelerating market growth for your type of firm.

Scale

1. 1 (no impact on growth)
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7 (high impact on growth)
8. NA

32. Access to greater supply of agricultural commodities

1 - No impact on growth	10%
2	10%
3	13%
1-3 - Total no impact on growth	**32%**
4 - Neutral	18%
5-7 - Total will impact growth	**36%**
5	15%
6	11%
7 - High impact on growth	11%
NA	14%
Median score	**4.0**

33. More research and development

1 - No impact on growth	5%
2	13%
3	12%
1-3 - Total no impact on growth	**29%**
4 - Neutral	26%
5-7 - Total will impact growth	**34%**
5	15%
6	14%
7 - High impact on growth	6%
NA	10%
Median score	**4.0**

34. Better distribution channels

1 - No impact on growth	6%
2	6%
3	5%
1-3 - Total no impact on growth	**17%**
4 - Neutral	22%
5-7 - Total will impact growth	**55%**
5	16%
6	19%
7 - High impact on growth	21%
NA	7%
Median score	**5.0**

35. Better transportation systems

1 - No impact on growth	6%
2	14%
3	10%
1-3 - Total no impact on growth	**29%**
4 - Neutral	18%
5-7 - Total will impact growth	**46%**
5	23%
6	14%
7 - High impact on growth	10%
NA	7%
Median score	**4.0**

36. Improved utility infrastructure

1 - No impact on growth	6%
2	15%
3	7%
1-3 - Total no impact on growth	**27%**
4 - Neutral	27%
5-7 - Total will impact growth	**34%**
5	17%
6	10%
7 - High impact on growth	8%
NA	11%
Median score	**4.0**

37. Availability of developable land

1 - No impact on growth	22%
2	11%
3	9%
1-3 - Total no impact on growth	**41%**
4 - Neutral	14%
5-7 - Total will impact growth	**29%**
5	12%
6	9%
7 - High impact on growth	9%
NA	16%
Median score	**4.0**

38. International market competition

1 - No impact on growth	17%
2	11%
3	16%
1-3 - Total no impact on growth	**43%**
4 - Neutral	15%
5-7 - Total will impact growth	**30%**
5	8%
6	12%
7 - High impact on growth	11%
NA	12%
Median score	**4.0**

Workforce Issues

Now I'd like to ask you some questions about your company's workforce,

39. What are your company's most pressing workforce issues? (READ 1-4, 4-1)

Cost of labor	52%
Shortage of people with technical skills	45%
Availability of people who lack soft skills, such as taking responsibility and getting along with others	32%
Shortage of senior management staff	14%
Other? (Specify)	
Shortage of employees/entry level/labor	5%
New Oregon minimum wage	2%
Mandatory sick pay and increased minimum wage	1%
Maintenance staff	1%
Government giving welfare to potential workers	1%
NA	7%

Marketing and Brand Promotion

Thinking now about marketing,

40. Does your company participate in cooperative marketing efforts with other similar companies, or not?

Yes	43%
No	57%

40a. Are these marketing efforts, (READ 1-4)

Very satisfactory	16%
Fairly satisfactory	66%
Total satisfactory	**82%**
Total dissatisfactory	**18%**
Somewhat dissatisfactory	18%
Very dissatisfactory	--

41. How would you describe the national brand strength of your product(s) produced in Oregon today, as (READ 1-4)

Very strong	17%
Fairly strong	38%
Total very/fairly strong	**55%**
Total not very strong/not strong at all	**42%**
Not very strong	26%
Not strong at all	16%
Don't know	2%
NA	1%

Q42 INTERNATIONAL RESPONDENTS ONLY (N=69)

42. How would you describe the international brand strength of your product(s) produced in Oregon today, as (READ 1-4)

Very strong	12%
Fairly strong	28%
Total very/fairly strong	**39%**
Total very strong/not strong at all	**59%**
Not very strong	23%
Not strong at all	36%
Don't know	1%

43. To what extent do you think your product(s) would benefit from efforts to develop a stronger Oregon brand? Would they benefit, (READ 1-4)

A great deal	39%
Some	40%
Total a great deal/some	**79%**
Total not much/not at all	**21%**
Not much	15%
Not at all	6%

44. Would increased tourism marketing increase your company's sales, or not?

Yes	45%
No	54%
NA	1%

Government and Industry Collaboration

45. Are there currently federal, state or local government programs or investments that are helpful in enabling your company to expand its markets? (Examples might include university R&D programs, low-cost testing and certification facilities, regional and local transportation and utility infrastructure, tax policy, training programs, financial and technical support to improve energy efficiency, etc.)

Yes	29%
No	8%
Don't know	3%
NA	60%

45A. IF YES IN (Q45): What are these programs or investments? (RECORD RESPONSE VERBATIM, ACCEPT MULTIPLE RESPONSES).

Tax policy	5%
WUSATA grants/programs	4%
VAPG opportunities	2%
University and private R&D programs	2%
OMEP	2%
Low-cost testing and certification facilities	2%

Financial and technical support to improve energy efficiency	2%
Energy tax credits/incentives	2%
Training programs for existing workers	2%
Green Energy Fund	2%
Export education	1%
STEP grant	1%
Availability of certification fee rebates	1%
US Commercial Service	1%
Oregon Department of Agriculture export staff	1%
Oregon Food Innovation Center lab	1%
Travel Oregon	1%
Training programs for technical skills	1%
OSU Food Service Department	1%
City and state incentives and grants	1%
Oregon Energy Trust for utility cost savings	1%
Oregon Business Development Group	1%
Low cost surveys to test sampling groups	1%
Local transportation upgrades	1%
State infrastructure investment to support production facilities	1%
Fix port operations/labor issues at the port	1%
Federal specialty food grant	1%
Local economic development district	1%
Eugene Food and Beverage Coalition encouraging collaboration between city and industry	1%
Defeating minimum wage increase	1%
Training on exports	1%
Improved tourism messaging	1%
Workforce tax credits	1%
Tax credits for worker housing	1%
Property tax exemptions for food handling equipment	1%
Regional and local transportation infrastructure	1%
Rail line that could tie into national system	1%
Permit process and cost at state and local level	1%
Portland Development Commission grants	1%
NRCS programs for land transition to organic	1%
Farm Bill support for organic	1%
GMO disclosure	1%
Restrictions to prevent contamination of non-GMO crops	1%
Internships by university marketing students	1%
Nothing/none	8%
Don't know	3%
NA	60%

46. Are there federal, state or local government programs or investments that you are aware of that are not helpful in enabling your company to expand its markets, or not?

Yes	24%
No	7%
Don’t know	2%
NA	68%

46A. IF YES IN (Q46): What are these programs or investments? (RECORD RESPONSE VERBATIM, ACCEPT MULTIPLE RESPONSES).

Proposed minimum wage increase	7%
Tax/revenue issues	2%
Oregon Business Development Group	1%
Proposed business sales tax on over $25 million in sales	1%
Sick pay and wage issues	1%
Paying unemployment taxes even though we don't have Layoffs	1%
OLCC	1%
Increased taxes on beer production	1%
Bottle deposit	1%
Strict electrical requirements compared with other states	1%
Washington B&O tax	1%
Canadian exchange rate	1%
Oregon Lottery	1%
Increased labor costs	1%
International marketing and trade coordination	1%
Excessive food safety regulations	1%
Availability of water	1%
Food safety certifications	1%
They keep doing research after they have the answer	1%
County property tax	1%
Road taxes for roads I don't use	1%
Small companies paying excessive fees	1%
None	7%
Don't know	2%
NA	68%

47. Are there additional federal, state or local government programs or investments that you believe would be helpful in enabling your company to expand its markets?

Yes	19%
No	3%
Don’t know	4%
NA	75%

47A. IF YES IN (Q47): What are these programs or investments? (RECORD RESPONSE VERBATIM, ACCEPT MULTIPLE RESPONSES).

Low cost loans	2%
EWEB should provide grants or discounts to add utilities for business expansion	1%
Federal new market tax credit program	1%
State and local support for the Willamette Valley Grown and/or Crafted Branding Initiative	1%
Infrastructure upkeep and improvement	1%
Help smaller manufacturers with equipment/expansion Credits	1%
Reduce regulations	1%
Coordinate programs and communicate to ensure businesses can use programs that will help them	1%
Encourage companies to hire ex-felons for rehabilitation	1%
Support in administering transport of industrial non-beverage alcohol across the Canadian border	1%
Oregon State international offices in Asia	1%
Government programs that support overseas exports	1%
Downsize and reduce cost of government	1%
Bring refrigerated container service back to the Port of Portland	1%
Reduce taxes on small distilleries	1%
Increase tourism	1%
Minimum wage	1%
Improve the SBA loan program	1%
Nothing/none	3%
Don't know	4%
NA	75%

48. Would there be value in creating a one-stop service to coordinate multiple regulatory agencies at the state level, or not?

Yes	65%
No	27%
Don't know	3%
NA	5%

49. Does your company currently participate in industry-wide collaborative efforts, or not?

Yes	63%
No	36%
Don't know	1%

49a. IF NO: What prevents your participation? (RECORD RESPONSE VERBATIM, ACCEPT ONE RESPONSE)

Time	16%
Don't know what they are/not aware of any	14%
Doesn't apply to our situation	11%
Size of the company	5%
Competition	3%
Group we belonged to dissolved	3%
Not enough money	3%
They try to sell us things we don't need	3%
NA	43%

50. Is there a need for better coordination among the various industry associations in the Food and Beverage Industry, or not?

Yes	59%
No	38%
Don't know	3%

50a. IF YES: Please explain. If so, what? (RECORD RESPONSE VERBATIM, ACCEPT MULTIPLE RESPONSES).

Co-promotion/collaboration is necessary	7%
Lobbying efforts/we aren't visible to the state legislature	5%
Coordinate efforts to develop a regional brand so that Limited resources can be used more effectively	5%
Communication/improved communication	5%
Eliminate unnecessary/duplicate regulations	3%
NWFPA lacks key industrial members	2%
Understand others' perspectives so we can be a unified voice for change	2%
Greater cooperation between agricultural associations	2%
We'd like to meet more raw material suppliers	2%
Need more sophisticated strategy for organic supply chain development	2%
SQF and BRC criteria	2%
It's always beneficial for businesses to discuss common Issues	2%
Committees should form across the state	2%
Yearly symposium	2%
They speak for us	2%
Decrease bureaucracy/paperwork	2%
Stop people from using substandard ingredients	2%
Don't know	5%
NA	50%

And finally,

51. What is your role in the company?

Owner	46%
Manager	23%
CEO/President	15%
COO/CFO	7%
Vice President	4%
Office (general)	1%
HR Administrator	1%
Sales	1%
International	1%
Director of Administration	1%
Founder/former owner/contractor	1%

APPENDIX B: Project Clients and Persons Consulted

BUSINESS OREGON

Chris Harder, Director
Karen Wilde Goddin, Assistant Director, Economic Strategies and Policy
Donna Greene-Salter, Strategic Initiatives Project Manager
Michael Meyer, Economist
Sean Stevens, Business Development Officer
Larry Holzgang, Business Development Officer
Carolyn Meece, Business Development Officer

OREGON DEPARTMENT OF AGRICULTURE

Katy Coba, Director
Gary Roth, Industry Development Director
Terry Fasel, Marketing Director
Lindsay Eng, Director of Market Access and Certification
Karla Valness, Marketing Operations Manager
Erick Garman, Trade Development Manager
Casey Prentis, Field Operations Manager

OREGON FOOD AND BEVERAGE INDUSTRY LEADERSHIP COUNCIL

Co-chairs:

Patrick Criteser, President/CEO, Tillamook County Creamery Assn.
Sam Tannahill, Founder, A to Z Wineworks & Rex Hill

OREGON BUSINESS COUNCIL

Duncan Wyse**,** President
Jeremy Rogers**,** Vice President; Oregon Business Plan Project Manager
Kyle Ritchey-Noll, Director, Education and Workforce Policy; Oregon Learns Executive Director

OREGON BUSINESS ASSOCIATION

Ryan Deckert, President
Joel Fischer, Senior Policy Analyst

NORTHWEST FOOD PROCESSORS ASSOCIATION

David McGivern, President
Pam Barrow, Vice President Energy, Sustainability and Environmental Affairs
Ian Tolleson, Director, Government Affairs
Dave Klick, Outreach Executive
Kirsten Ringen, Community Engagement and Education Manager
Josh Monifi, Policy and Communications Associate
Brian Campbell, Director Food Safety and Policy

OREGON STATE UNIVERSITY

Daniel J. Arp, Dean, College of Agriculture
Robert McGorrin, Department Head, Food Science and Technology
Lisbeth Goddick, Food Science and Technology, Extension Dairy Processing Specialist; and Program Coordinator and Executive Board Member, Oregon Dairy Industries (ODI)
David Stone, Executive Director, Food Innovation Center
Sarah Masoni, Product & Process Development Manager Food Innovation Center

OREGON DEPARTMENT OF EDUCATION

Reynold Gardner, Secondary/Post-Secondary Transitions – Ed. Specialist, Agriculture and Natural Resource Systems

OREGON EMPLOYMENT DEPARTMENT

Melissa Leoni, Executive Director, Oregon Talent Council

INDUSTRY STAKEHOLDERS

David Adelsheim, Owner, Adelsheim Vineyard
Jacqueline Alexander, Principal, Know Your Fruit
Ken Bailey, Vice President, Orchard View Farms
Lynn Barra, President, Paradigm Foodworks
Dennis Bell, Operations Manager, Meduri Farms and World Delights
Jim Bernau, Managing Partner, CEO, Willamette Valley Winery
Jeni Billups, OFD Foods, Inc.
Bill Burich, Vice President Operations, NORPAC Foods Inc.
Brian Butenshoen, Executive Director, Oregon Brewers Guild
Shawn Campbell, Assistant Director, U.S. Wheat Associates
Brian Petros, Vice President Operations, Hood River Juice Company
Julio Castilleja, Owner, 444Beverage Company
William D. Chambers, President, Stahlbush Island Farms
Wayne Claver, Sr. Dir. Manufacturing, ConAgra Foods, Lamb-Weston
Ken Condliff, Owner, Nut-Tritious Foods
Janice Cooper, Managing Director, Wheat Marketing Center
Neal Cournoyer, General Manager, Cary's Toffee
John Damon, Sr. Vice President, Manufacturing, OFD Foods, Inc.
Tom Danowski, Executive Director, Oregon Wine Board
Luis B. Dominguez, President, Juanita's Fine Foods
Catherine Douglas, Manager of Export Sales, Adelsheim Vineyard
Mark Fountain, VP of Operations, Oregon Fruit Products
Elizabeth Fujas, Owner/CEO, Rising Sun Farms
Jon Gehrs, President/Packaged Foods Div., Pacific Foods
Josh Grgas, Brand Manager, The Commons Brewery
Chad Hahn, Owner, Fulcrum Dining, The Haul
Chris Haines, Copack Business Manager, Sunshine
Susan Hall, President and CEO, Hall Brands
Ryan Harms, Owner, Union Wine Company
Dawn Iwamoto, Recruiting Specialist, Pacific Foods
Dan Jarman, Partner, CFM Strategic Communications
Ed Johnson, CEO, Johnson Integrated Services
Kurt McKnight, President and CEO, Ever Fresh Fruit Co.
Steve Kollars, VP Technical Services, Oregon Cherry Growers, Inc.
Christian Krogstad, Founder, House Spirits Distillery
Russell Loughmiller, President, Muirhead Canning Co.
Jesse Lyon, Partner, Davis Wright Tremaine
Tony Lucarelli, Executive Vice President Sales and Marketing, Henningsen Cold Storage
Troy Madison, Madison Ranches, Echo Oregon
Ron Milio, Director of Supply Chain, Dave's Killer Bread
Tyrell Monter, Shift Supervisor, Del Monte Foods, Inc.
Devon Morales, Legal & Analytics, Ransom Wine Co. & Distillery
Mike Moran, General Manager, Shepherd's Grain
Steven J. Morasch, Controller, Morasch Meats
Sheri Murphy, Owner & Creator, Murf's Marvelous Pancakes & Handcrafted Syrups
Harry Peterson Nedry, Owner, Chehalem Winery
Clark Nelson, Human Resources Manager, Mondelez International
Amy Nyguen, Owner, Dragonberry Produce
Jonah Nickerson, Purchasing, Grain Millers
Walt Olson, Operations and Logistics, Don Pancho Authentic Mexican Foods
Ted Pappas, President, Distillers Guild, Founder & Owner, Big Bottom Distilling
Tony Pastega, Vice President Business Development, Riverhouse Food Products

Bryan Powell, Tax Partner, Moss Adams LLP
Debbie Radie, Vice President, Boardman Foods
Evann Remington, Fresh & Local Foods
Rick Rickard, General Manager, Rolling River Spirits
Sue Root, Director of Field Services and Processing Fruit, Oregon Cherry Growers
Blake Rowe, CEO, Oregon Wheat Commission
David Ryan, President, Hood River Juice Company
Dick Sadler, President and CEO, Dundee Fruit Company
Chris Sarles, President and CEO, Oregon Fruit Products LLC
Jacob Schrader, COO, Bright Earth Foods
Brian Shaw, President, Oregon Brineworks
Mark Sheppard, Operations/Supply Chain Director, Diana Naturals
George F. Smith, President & CEO, NORPAC Foods, Inc.
Kevin Susman, Guy in Charge, Storm Cellar Marketing
Bill Sweat, Owner, Winderlea Winery
Rick Teeny, President, Teeny Foods
Julie Ueland, Marketing Product Development, Hood River Juice
Emily Van Wyk, Staffing Manager, Trident Seafoods
Rob Wymore, Farm Mill Manager, Azure Standard

Local and Regional Economic Development and Workforce Development Officials

Scott Aycock, Community and Economic Development Manager, Central Oregon Intergovernmental Council (CCOIC)
Michelle Binker, Chief of Staff, Representative Carl Wilson
Mike Cohen, Director, Oregon Small Business Center; and Director, Tillamook County Economic Development Council
Josefine Fleetwood, Workforce Development Director, Albany Chamber of Commerce
Connie Green, President, Tillamook Bay Community College
Nick Harville, Business Retention and Expansion, Manager, SEDCOR
David Hauser, President, Eugene Area Chamber of Commerce
Amanda Hoey, Executive Director, Mid-Columbia Economic Development District
Leigh Anne Hogue, Director of Economic Development, Eugene Area Chamber of Commerce
Ray Hoyt, Title III Project Director, Tillamook Bay Community College
Daniel Hunter, Project Coordinator, City of the Dalles
Matthew Klebes, Executive Director, The Dalles Main Street
James LaBar, Regional Solutions Coordinator, Office of the Governor
Rick Leibowitz, Regional Director, Oregon SBDC
Rose Marshall, Vice President, Operations and Business Development, Innovation Frameworks
Lisa Mittelsdorf, Economic Development Manager, Port of Morrow
Mark Morgan, Assistant City Manager, City of Hermiston
Gary Neal, General Manager, Port of Morrow
Greg O'Sullivan, Director, Klamath County Economic Development Association (KCEDA)
Debbie Pedro, Executive Director, Hermiston Chamber of Commerce
Kim Puzey, General Manager, Port of Umatilla
Kristin Retherford, Urban Development Director, City of Salem
Betty Riley, Executive Director, South Central EDA District (SCOEDD)
Susan Seereiter, Business Advocate, City of Grants Pass, Oregon
Genevive Scholl, Communications & Special Projects, Port of Hood River
Katrina Van Dis Gorbold, Program Administrator, CCOIC
Elizabeth Zack, Staff Writer, Rural Community Assistance Corporation