University of Idaho Extension

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The Role of Agricultural Processing in Idaho's Economy: Status and Potential

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Executive Summary

Idaho food manufacturing accounts directly for 16,000 jobs (2% of Idaho's jobs), $8.5 billion in sales (7.3% of Idaho's sales), and $1.2 billion of the Gross State Product (2% of Idaho's GSP). Almost 72% of Idaho food manufacturing jobs and 75% of food manufacturing gross product are provided by industries that process barley, wheat, sugarbeets, potatoes, and milk. Together, the whole food processing industry and agricultural industry in Idaho account directly for 6% of jobs, 15% of sales, and 7% of GSP.

The economic impact of Idaho's agricultural processing industry is substantial. In 2011, the main commodities of potatoes, sugarbeets, dairy, barley, and wheat contributed:

- $9.7 billion in sales ($5 billion direct and $4.7 billion indirect and induced)
- $2.8 billion of the state's GDP ($0.7 billion direct and $2.1 billion indirect and induced)
- 41,000 jobs in Idaho (9,400 direct and 31,600 indirect and induced)

Demand for Idaho's agricultural commodities by firms outside of Idaho (exogenous demand) accounts for 7% of Idaho's total GSP. Food processing sales to firms outside of Idaho comprise another 5% of Idaho's GDP. Together, farming, ranching, and food processing exogenous demand comprise 12% of Idaho's GDP.

Processing of potatoes and milk accounts for more than half of the sales from agricultural processing in Idaho and provides about 60% of Idaho's food processing jobs. Idaho's dairy industry employed 16% of the agricultural processing job force and was responsible for 26% of the sales from the agricultural processing industry in Idaho in 2011. Idaho's potato processing industry employed 46% of the agricultural processing workforce and was responsible for 33% of the sales. The sugarbeet processing industry employed 9% of the agricultural processing workforce and accounted for 10% of sales. The Idaho barley processing industry employed 2% of the agricultural processing workers and was responsible for 4% of the sales from the agricultural processing industry. The beef industry currently has no large processing facilities in the state.

Nearly all of Idaho's food processing industry is located in southern Idaho, with 44% in eastern Idaho, 29% in south-central Idaho, 25% in southwestern Idaho, and 2% in northern Idaho.

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Economic contribution

Idaho food manufacturing accounts directly for 16,000 jobs (2% of Idaho's jobs), $8.5 billion in sales (7.3% of Idaho's sales), and $1.2 billion of the Gross State Product (2% of Idaho's GSP). Almost 72% of Idaho food manufacturing jobs and 75% of food manufacturing gross product are provided by industries that process barley, wheat, sugarbeets, potatoes, and milk. Together, the whole food processing industry and agricultural industry in Idaho account directly for 6% of jobs, 15% of sales, and 7% of GSP.

Much of the food manufacturing and processing industry in Idaho depends directly on agricultural commodities produced in the state. However, several sectors in the food manufacturing industry use imported agricultural commodities for processing together with local products. Still other food manufacturing sectors import all of their agricultural commodities. In this report, we will ignore those sectors that do not rely on Idaho's agricultural industry. This report focuses on the contribution of Idaho's food manufacturing and processing industry that is associated with agricultural products produced in Idaho. Specifically, we will study:

- Beet sugar manufacturing
- Flour milling and malt manufacturing, which processes barley and wheat
- Frozen food manufacturing, which processes mostly potatoes
- Canned, pickled, and dried fruit and vegetable manufacturing, primarily of dehydrated potatoes
- Fluid milk and butter manufacturing
- Cheese manufacturing
- Dry, condensed, and evaporated dairy products manufacturing
- Ice cream and frozen dessert manufacturing

To determine the extent to which the food manufacturing and processing industry affects Idaho's economy, we estimated its exogenous demand (demand from outside Idaho). We used IMPLAN, which is an input/output model, to calculate how a change in demand from outside Idaho can cause economic changes in Idaho. These changes (known as respending) are often called the **ripple effect**. An estimate of the size of the respending caused by a change in exogenous demand as it ripples through the economy is called the **multiplier**.

The importance of Idaho's food manufacturing and processing industry can be measured by its direct, indirect, and induced impacts. **Direct impact** in the food manufacturing and processing industry includes all direct payments made by the industry, such as wages paid to workers and payments to suppliers. **Indirect impact** refers to purchases by food industry suppliers as they respond to the demand of the food manufacturing industry. Another type of expenditure refers to purchases by members of households made with the salaries or other income they receive from businesses directly or indirectly related to the food industry. These are **induced expenditures** and include purchases for food, medical services, retail goods, and many other products and services.

The 2011 total economic impact (direct, indirect, and induced) of the Idaho food manufacturing and processing industry related to barley, wheat, sugarbeets, dairy, and potatoes included:

- $9.7 billion in sales ($5 billion direct and $4.7 billion indirect and induced), or 8% of Idaho's total sales
- $2.8 billion of the state's GDP ($0.7 billion direct and $2.1 billion indirect and induced), or 5% of Idaho's GDP
- 41,000 jobs in Idaho (9,400 direct and 31,600 indirect and induced), or 5% of Idaho's jobs

Historical employment trends

Figure 1 (page 3) shows employment indices for food manufacturing in Idaho and the U.S. Figure 1 expresses both Idaho and U.S food manufacturing employment in 2002 as a base figure of 100. Total employment in later years is expressed as a percentage of the 2002 base. Figure 1 includes all food industries in Idaho, including those that are not associated with agricultural products produced in Idaho.

As seen in figure 1, food manufacturing employment in Idaho and the nation has been declining since 2002. Idaho's food manufacturing employment fell approximately 10% between 2002 and 2006. Although some of these losses were recovered in 2007 and 2008, Idaho's food manufacturing fell again during the Great Recession. Overall, food manufacturing employment fell 4% in the U.S and 5% in Idaho from 2002 to 2012.

Strengths and weaknesses of Idaho's food industry

Location quotients (LQs) provide a useful measure for comparing the industrial specialization of Idaho's economy with the U.S economy. We calculate LQs by taking the percentage of employment (or, alternatively, output) from an industry in Idaho and dividing it by the percentage of employment (or output) for the same industry in the U.S. An LQ of 1.0 indicates that Idaho's economy has the same proportion of employment as the nation for that industry (appendix table A-1, page 19). When industries in Idaho have LQs greater than 1, these industries have more economic activity in Idaho than in the nation as a whole.

Using LQs and their change over time, we can conduct a "SWOT" analysis (Strengths, Weaknesses, Opportunities, and Threats). For this purpose, we classify industries into four categories:

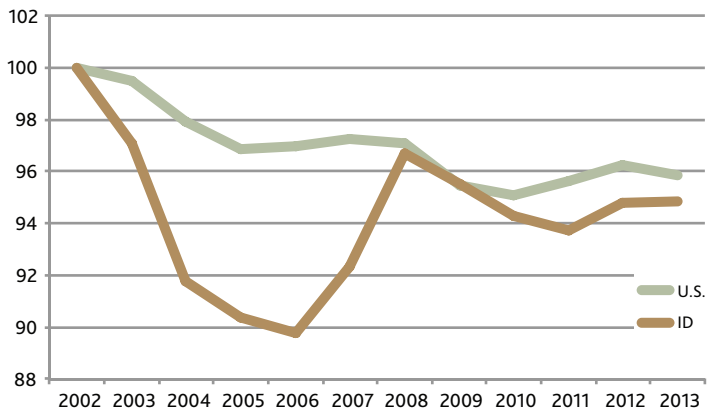

Figure 1. U.S. and Idaho food manufacturing employment indices, 2002–2013 (2002=100). Data for 2013 extends only through July. Source: U.S. Bureau of Labor Statistics and Idaho Department of Labor.

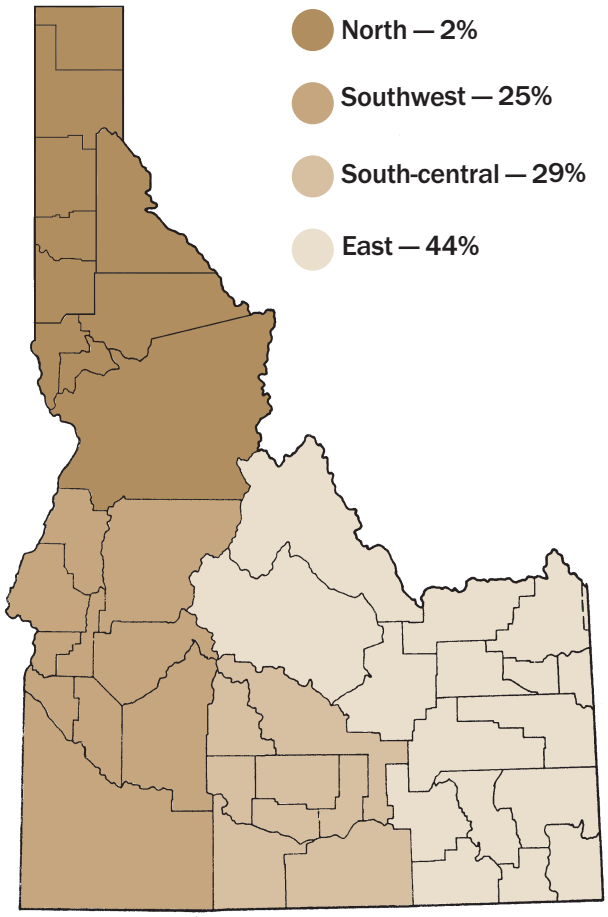

Figure 2. Location of Idaho food processing industry by region, 2011. Source: IMPLAN.

- Strength: Strength (LQ>1) and growing (LQ change>0)
- Threat: Strength (LQ>1) and declining (LQ change<0)
- Weakness: Weakness (LQ<1) and declining (LQ change<0)
- Opportunity: Weakness (LQ<1) and growing (LQ change >0)

Note, however, that if we use employment to compute our LQ and an industry in Idaho becomes more capital intensive than the corresponding industry in the rest of the nation, this industry will have a smaller LQ and a negative change in LQ. These changes might be misinterpreted as a threat or a weakness. For this reason, we also present LQs for output in appendix table A-2 (back cover).

Location of food processing industry

Nearly all of Idaho's food processing industry is located in southern Idaho, with 44% in eastern Idaho, 29% in south-central Idaho, and 25% in southwestern Idaho (figure 2). Although farming and ranching are important in northern Idaho, only 2% of food processing is located there. In general, processing facilities are located close to their respective production regions. Potato and milk producers in particular are linked to large in-state processing industries.

Agricultural production in Idaho

The Idaho processing industry depends upon its large, thriving agricultural production sector. In 2011, Idaho farm sales totaled $8.6 billion: $4.6 billion for crops and $4 billion for livestock. **Based on the value of production in 2011, Idaho was ranked among the top producing states in the nation for the following commodities (USDA-NASS):**

- Potatoes, No. 1 in U.S.
- Barley, No. 1 in U.S.
- Sugarbeets, No. 2 in U.S.
- Milk, No. 3 in U.S.
- Alfalfa, No. 4 in U.S.
- Lentils, No. 4 in U.S.
- Wheat, No. 5 in U.S.

Potatoes, milk, barley, beef, sugarbeets, and wheat are analyzed in the following sections. The analyses include economic contributions, location of processing facilities, and commodity trends. Also included is a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis for each food processing sector. USDA was our primary data source. All crop prices and value of production are nominal values as reported by USDA-NASS.

Barley

Economic contribution

The economic contribution of the barley processing industry included **cash receipts of $277 million** in 2011 (IMPLAN). The barley processing industry **employed 253 people**, with **employee compensation of $13.6 million**. The **additional value to the Idaho economy** from the barley processing industry was **$23.8 million.**

Processing and location

Idaho has three malt plants. Great Western Malting built Idaho's first malt plant in 1981. Located in Pocatello, Great Western processes about 5.5 million bushels of barley per year. Anheuser Busch's Idaho Falls malt plant, Idaho's largest, processes about 14 million bushels of barley annually. Built in 1991, the plant doubled to its current capacity in 2005. The Idaho Falls Modelo malt plant, which was completed in 2005, processes about 6 million bushels of barley each year. Anheuser Busch is now a wholly owned subsidiary of Anheuser-Busch InBev, which also recently completed its acquisition of Grupo Modelo. Although Miller-Coors does not have a malt plant in Idaho, they operate a 16-million-bushel barley storage and processing facility in Burley and contract with barley growers in Idaho for processing in other states.

Production and price trends

Idaho's role

Idaho produced 53.69 million bushels of barley in 2012, making Idaho the second largest producer of barley in the U.S. after North Dakota, a position it has held for 9 of the past 10 years. Of the total 2012 U.S. barley crop, 24.4% was raised in Idaho. Idaho ranked first in 2011, when weather problems reduced North Dakota's crop, and is expected to move permanently into first place if North Dakota continues to shift acres to corn.

Over the past 20 years, the percentage of the U.S. barley crop used domestically has increased, and the percentage exported has declined. Domestic use accounted for 96% of U.S. barley crop utilization in the 2012–2013 marketing year, with only 4% exported. By contrast, in 1993 domestic use was only 86% of the U.S. barley crop, and exports were 16%.

Livestock feed and malting are the dominant uses of barley in the U.S., with a minor amount used for human food and industrial uses. Domestic use trends show an increased percentage used for human consumption and declining use for livestock feed. In 2012–2013, domestic use included 67% for malting, an estimated 3% for food and industrial use, 27% for feed, and 3% for seed. In 1993, by contrast, feed use accounted for 59% of domestic use, and malting accounted for an estimated 36%. In 1993, 51% of Idaho's barley acreage was planted to malting varieties; in the 2012 crop, this figure was 77%.

Acres and yield

Idaho's high desert climate with cool summer nights and abundant irrigation water make it an ideal location for quality barley production, particularly in eastern Idaho, where 60% of Idaho's barley is grown. While the 20-year trend for planted acres shows a sizeable decline, the past 2 years show a positive trend. In the past decade, annual planted acreage has averaged 575,000, which is a substantial decline relative to the previous decade, when planted acreage averaged 741,000 (figure 3, page 5). Idaho's planted acres dropped by 21% from 1993 to 2012, while U.S. barley acres dropped by 53%. Average barley yield in Idaho increased about 12% over the same time period, from 77 bushels per acre for the 10-year period from 1993 to 2002 to 86 bushels per acre for the 10-year period from 2003 to 2012 (figure 3).

Price and value of production

The market-year All Barley price over the past decade has averaged $4.36 per bushel, which is a 60% increase over the previous decade (figure 4, page 5). The value of production has increased by 38% despite a reduction in planted acres of 22% over the same time period (1993–2002 relative to 2003–2012).

SWOT analysis

Strengths. Idaho has a reputation for producing high-quality barley. Its growing conditions make it possible to consistently produce the high-quality barley needed for malt. Idaho's experienced grower base views barley as a good rotation crop and is committed to producing high-quality barley at the lowest possible cost. These factors, coupled with substantial capital investment in existing malt plants and storage facilities, along with access to good transportation infrastructure, represent strengths for the Idaho barley industry.

Weaknesses. Barley has traditionally received less favorable Farm Bill price support, deficiency payments, and crop insurance provisions relative to other grains, making it less competitive. The strong historical reliance on government farm program payments leaves barley/wheat growers vulnerable to changes in farm policy. Currently, barley has no genetically modified organism (GMO) option. This option has provided an economic advantage to corn and soybean growers. Historically, Idaho barley variety development and agronomy have received comparatively fewer university and USDA Agricultural Research Service (ARS) resources than other barley-producing states. Lastly, malting barley contracts are not always competitive with alternative crops.

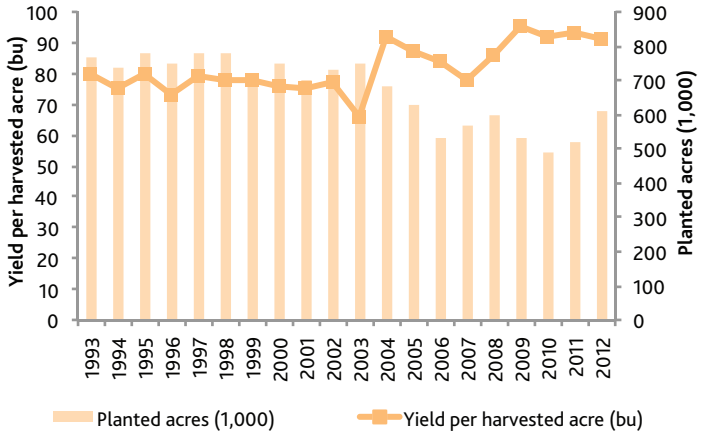

Figure 3. Idaho barley yield and production (All Barley), 1993–2012. Source: USDA-NASS.

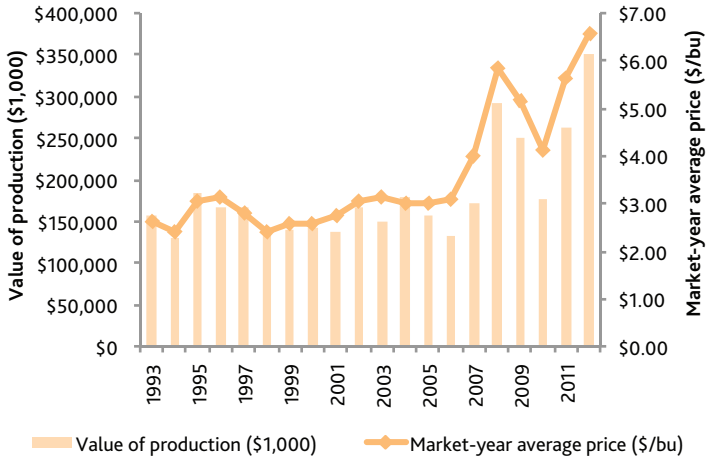

Figure 4. Idaho barley value of production and market-year average price, 1993–2012.

Opportunities. Idaho has the capacity to increase barley production to support new malt plants, expansion of existing malt facilities, or demand for new, specialized varieties. In early 2013, the Idaho Barley Commission created a Barley Research Endowment with the University of Idaho, which will support barley research and allow the university to play a leading role in malting barley research. Opportunities exist in the emerging niche market for barley as a heart-healthy food for human consumption, increasing demand for malt by specialty craft brewers, and the potential for expanding barley use as a feedstock for fish.

Threats. Public support for research and extension programs needed to help maintain a competitive malt barley industry in Idaho is declining. Market concentration among beer companies is increasing due to mergers. This trend is reducing competition and concentrating beer producers' market power, which will put barley growers at an increased disadvantage in contract negotiations. A tax increase on beer is seen by many as an easier way to raise revenue than other tax increases. If a tax increase results in reduced demand for beer, fewer barley acres will be planted. Finally, if Idaho corn acres continue to expand, disease pressure from Fusarium head blight could increase.

Beef

Economic contribution

At present, there are no large beef processors in Idaho. In 2003, 360 jobs were lost when the J.R. Simplot plant closed in Nampa. In 2006, another 270 jobs were lost when Tyson Foods closed its plant in Boise. The last major processing plant in Idaho closed in 2011 in Nampa. Another 522 jobs were lost with that plant closing.

Processing and location

Animal slaughter and processing facilities are increasingly consolidated across the U.S. Economies of scale make it difficult for small processing facilities to compete in the marketplace. For cattle, just 14 plants accounted for more than 55% of total U.S. slaughter (Johnson, Marti, and Gwin, 2012).

In the past, Idaho beef processing was located in Idaho's Treasure Valley, which includes the Lower Snake River and Boise River valleys and the cities of Boise, Nampa, and Caldwell. These plants had capacities ranging from 1,000 head per day (XL Four Star) to 1,600 head per day (Tyson). Currently, JBS Swift has a 75% share of slaughtering capacity in the western U.S. Slaughter facilities handling Idaho cattle now include:

- JBS Swift in Greely, CO, with a capacity of 5,000 head per day
- JBS Swift in Hyrum, UT, with a capacity of 4,000 head per day
- Tyson in Pasco, WA, with a capacity of 2,000 head per day
- AB Food in Toppenish, WA, with a capacity of 1,200 head per day

Production and value of production

U.S. cattle numbers are at their lowest since 1952. As a result, the entire industry is facing challenges, such as excess capacity in feedlots and packing houses. From 1992 to 2011, the number of Idaho beef cows declined 16%, from 532,000 head to 446,000 head.

The cattle industry is characterized by a series of complex, interlinked stages that deliver beef to the consumer. Seedstock producers provide commercial cow-calf operators with breeding animals and new genetics. Commercial cow-calf enterprises produce an annual crop of feeder cattle from bred females. Backgrounders and stockers feed or graze weaned calves (typically 450–700 lb) to heavier weights. At the finishing stage, cattle are fed a grain-based diet in feedlots until they meet carcass grade standards. Cattle are then sent to slaughterhouses for processing and packaging into units or boxed cuts that stores can easily repackage. Finally, beef is available for purchase by consumers in grocery stores, restaurants, and other foodservice establishments.

While the number of beef cattle in Idaho has decreased by one-fifth over the past 2 decades, the value of production has steadily increased (figure 5, page 7). In 2012, total cattle, including calves, were valued at $1.2 billion (USDA-NASS).

SWOT analysis

Strengths. Idaho has strong cow-calf and feeding sectors that are in good financial shape. Idaho's beef herd has been increasing for the past 3 years. Coupled with the growing dairy herd (see next section), the state (along with neighboring production regions of eastern Oregon, northern Nevada, and western Montana) has livestock numbers that could again support beef processing facilities. "Mothballed" processing facilities could be reactivated, with infrastructure investment. By-products from food processing facilities help Idaho feedlots compete with Corn Belt feedlots in terms of costs of gain and transportation. With the growing food security trends, niche markets have developed for "natural" beef, grass-fed beef, and other specialized products.

Weaknesses. The lack of federally inspected processing facilities in Idaho is costly to cattle feeders, who now have to transport animals out of state for slaughter. It also limits the enhancement of value-added opportunities for the beef sector. Existing inactive processing facilities would require substantial investment in infrastructure to update or expand local processing. For feeders using grains in their rations, costs have risen due to the high price of feed grains and transportation from the Midwest. Recent peaks in roughage (hay, silage, forage) prices have also contributed to cost increases. As seen with the closure of Cargill's Plainview, Texas plant, the current 60-year low in cattle numbers is forcing more industry consolidation. Plainview employed 2,300 workers and processed 4,500 head per day in the center of the Texas cattle feeding area near Amarillo. Between high feed costs and scarce feeder cattle supplies, the feedlot sector is also experiencing closures.

Opportunities. The availability of pasture and range in Idaho and the state's food processing by-products allow producers who can access these resources to put less costly gain on calves and stockers. Idaho's proximity to West Coast markets that are oriented toward "grass-fed or grass-finished" could be exploited. Idaho's proximity to shipping to Pacific Rim countries is a plus for beef

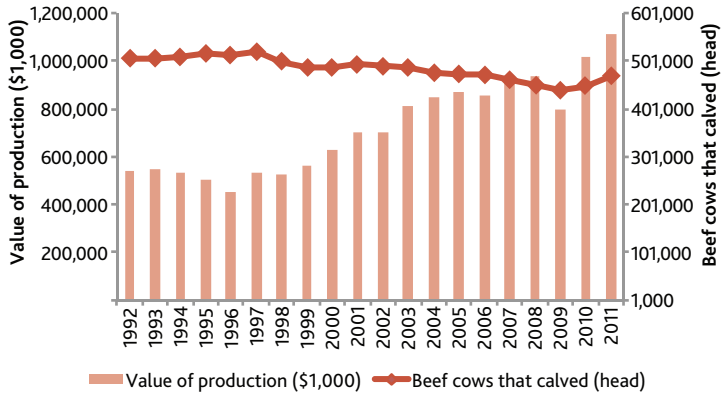

Figure 5. Idaho beef cow numbers and value of production, 1992–2011. Source: USDA-NASS, Livestock Marketing Information Center (LMIC).

exporters. The growing dairy sector, coupled with the beef sector, would support a cull animal processing facility. With approximately 580,000 dairy cows producing an estimated 276,000 dairy steers per year, the possibility exists for dairy beef or feeder production. Historically, dairy steer calves sell for a large discount relative to heifers. Recently, however, dairy steers have been selling for as much as or more than heifers. The demand for animals that can be raised to a weight to enter feeding/finishing programs is increasing as beef supplies tighten.

Threats. Drought and fire reduce forage supplies and increase cattle production costs. Reliance on public rangelands brings uncertainty regarding future grazing use due to concerns about endangered species, fires, and drought. Environmental issues and regulations associated with clean water and air could limit expansion of confined feeding operations as well as the establishment of processing facilities. The lack of local finished beef markets limits price competition and raises concerns about the future sustainability of the beef feeding industry. Without the feeding industry, food processing facilities (e.g., potato, sugarbeet, and malting plants) would have to develop alternative means for disposal of by-products and waste.

Dairy

Economic contribution

The economic contribution of the dairy processing industry included **cash receipts of $2.2 billion** in 2011 (IMPLAN). The dairy processing industry **employed 2,577 people**, with **employee compensation of $131.3 million**. The **additional value to the Idaho economy** from the dairy processing industry was **$202.5 million**.

Processing and location

Idaho dairy processors have focused on cheese manufacturing, which has grown steadily in tandem with milk production (figure 6). Since 1992, overall cheese production has nearly quadrupled, growing from 214 million pounds to more than 850 million pounds in 2012. Growth in dairy processing is expected to continue, especially since Chobani, a New York-based Greek yogurt processor, built a new processing facility in Twin Falls in 2012. According to company founder and CEO Hamdi Ulukaya, the firm chose Twin Falls because of "its abundant milk supply, skilled labor force, and tight-knit local community." The facility is expected to add 350 new jobs.

Dairy manufacturing is primarily located across southern Idaho, close to the large commercial dairy industry. Dairy processors are distributed throughout the state and range from large commercial processors to family-owned artisan cheese and specialty product manufacturers. Idaho counties with dairy manufacturers employing 30 or more full-time employees are highlighted in figure 7. Approximately 70% of Idaho's dairy herd is located in the Magic Valley (the Snake River Plain surrounding Twin Falls).

Production and price trends

Milk production and cow numbers

From 1993 to 2012, Idaho's dairy herd more than tripled in size, from 189,000 head in 1993 to 580,000 head in 2012 (figure 8, page 9). Total output per cow has increased 37% over the past 20 years, from an average of 17,084 lb of milk per head to 23,376 lb per head annually. Total annual milk production in Idaho has increased from 3.2 billion lb to 13.6 billion lb from 1993 to 2012, due both to the growth in the number of cows and to higher productivity per cow (figure 8).

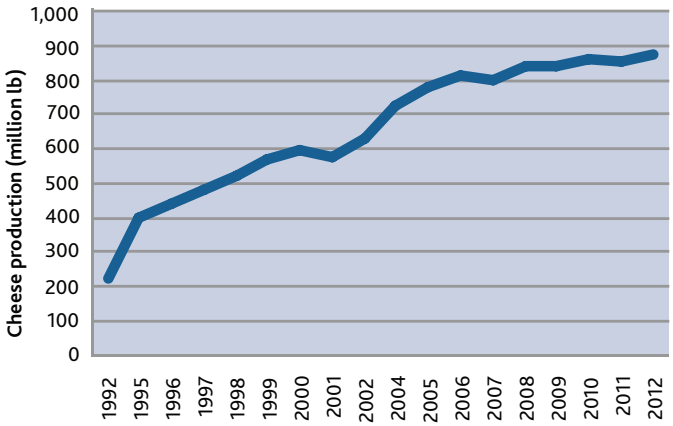

Figure 6. Idaho cheese production, 1992–2012.
Source: USDA-NASS.

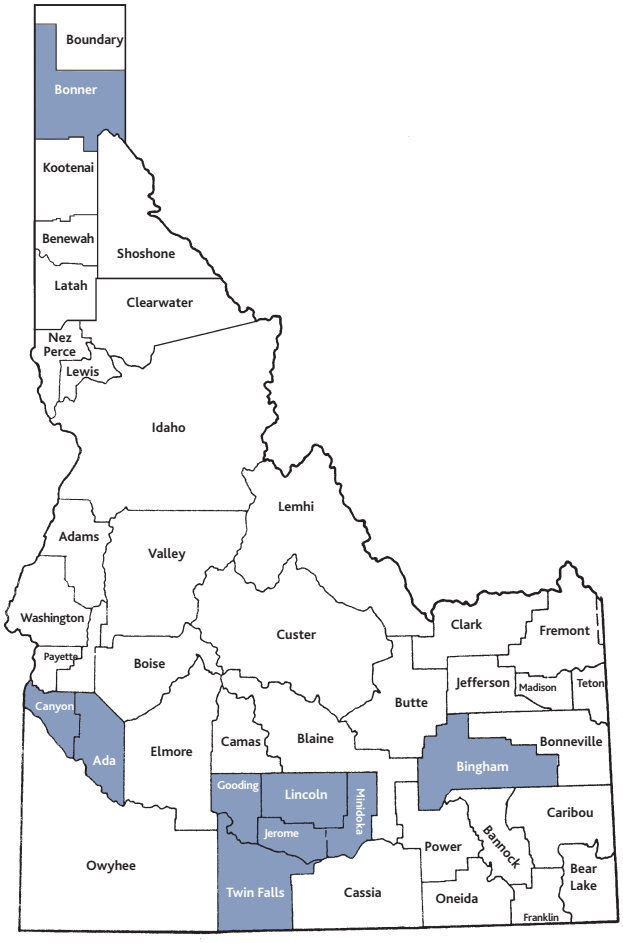

Figure 7. Location of Idaho dairy processing facilities.
Source: ISDA Dairy Bureau

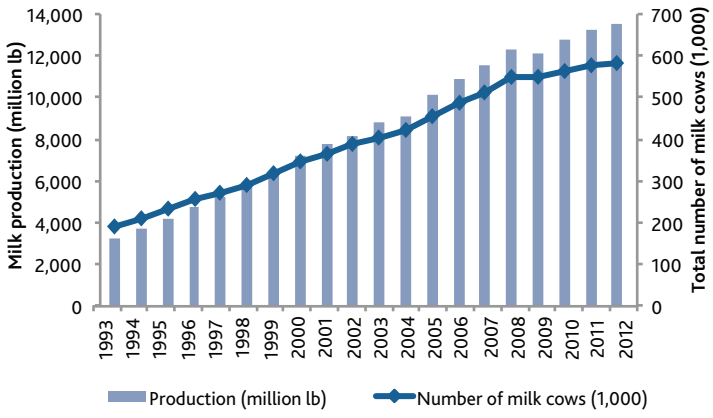

Figure 8. Idaho milk production and number of milk cows, 1993–2012. Source: USDA-NASS.

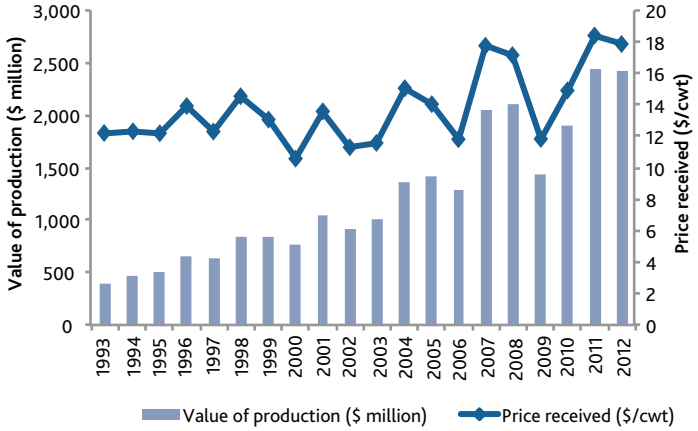

Figure 9. Idaho milk value of production and price received by producers, 1993–2012. Source: USDA-NASS.

Price and value of production

The value of farm-level milk production continues to rise, mainly due to increased production. The value of Idaho production peaked at $2.44 billion in 2011 (figure 9). Over the past 20 years, Idaho milk prices have been volatile (figure 9). From 1993 to 2012, the average annual price varied from $10.60 per hundredweight (cwt) in 2000 to $18.40 per cwt in 2011, with an average price of $13.70 per cwt for the 20-year time period (USDA-NASS).

SWOT analysis

Strengths. Abundant milk supplies have led dairy processors to build new facilities and expand existing facilities in Idaho. Dairy farmers have benefited from an abundance of local, high-quality feed. Idaho's mild climate, irrigation water, and skilled farmers producing feed crops help strengthen the dairy industry.

High-quality processed products are another strength. Award-winning Idaho dairy processors include Glanbia, with 11 awards for some of the best cheeses in the country; Sorrento Lactalis, with a Best in Class mozzarella; and Jerome Cheese, with third place for their mozzarella/provolone blend.

Weaknesses. Slow-growing demand for dairy products is one weakness. Milk consumption per capita has declined due to competition from other beverages and changing population demographics, including fewer young people. Demand for total U.S. dairy products grows at approximately the rate of population growth (approximately 0.9%).

Increasing production costs are another weakness. In 2013, hay prices reached record highs, while corn, soybean, and other feed grain prices also increased. High fuel prices are costly for the Idaho dairy industry because of its long distance from population centers.

The dairy industry is also facing a lack of capital. Banks are cautious in general but especially in terms of lending to dairy operations.

Opportunities. While overall demand for dairy products is growing slowly, demand for some products produced in Idaho is increasing more rapidly. Nationally, retail sales of Greek yogurt increased 50% from 2011 to 2012, and the category now accounts for 35% of refrigerated yogurt (Packaged Facts). More milk is needed to make Greek yogurt than conventional yogurt.

Increasing demand for cheese could provide opportunities for the Idaho dairy industry. U.S. per capita cheese consumption is double what it was 25 years ago and still growing. Reasons for demand growth include new product development, expanded cheese use by Quick Service Restaurants (QSRs), and changing consumer tastes and preference for ethnic foods that include cheese.

With the use of anaerobic digesters, dairies could supply energy for their own use and solve waste disposal problems at the same time. However, capital costs are still a barrier for this technology.

Threats. Immigration policy could affect the supply of labor in the dairy industry, since 41% of U.S. dairy labor is foreign born and 50% of U.S. dairies use immigrant labor (Rosson et al., 2009). The supply of feed is also a concern. Reduced grazing and hay supplies due to drought in other areas have increased overall demand. Corn continues to be an expensive feed source. Increasing demand for a limited water supply from domestic, industrial, environmental, and recreational uses is another threat to the dairy industry, as are concerns over waste disposal and contamination of surface and groundwater. As milk continues to be in surplus, processors are unlikely to compete until supply tightens up. Since the new Chobani plant in Twin Falls is coming online more slowly than expected, there currently is no foreseeable increase in price. Uncertainty looms regarding the next Farm Bill and the direction of dairy policy on milk pricing and risk management. Finally, the increased importance of export demand has left the dairy sector more vulnerable to price volatility driven by fluctuations in currency exchange rates and economic downturns in importing countries.

Potatoes

Economic contribution

In 2011, the economic contribution of the potato processing industry included **cash receipts of $2.84 billion**, excluding the value of fresh pack (IMPLAN). The potato processing industry **employed 7,478 people**, with **$351.78 million in employee compensation**. The majority of the jobs, 4,911, involved frozen processing. Dehydration processing accounted for another 2,567 jobs. The **additional value to the Idaho economy** from the potato processing industry was **$542.5 million**. Fresh packing, which is not included in the processing totals, involved approximately another 2,000 jobs.

Processing and location

Figure 10 (page 11) shows the disposition of the 2011 potato crop by major use category for Idaho and for the nation. Processing markets accounted for 64% of potato sales in Idaho and 69% of U.S. sales. The fresh market accounted for 29% of Idaho potato sales and 26% of U.S. sales, while the seed market accounted for 7% of Idaho potato sales and 6% of U.S. sales. Miscellaneous sales, primarily sales of potatoes for livestock feed, accounted for the remaining 1% for Idaho and for the nation.

Production of frozen potato products accounted for 65% of potatoes used by processors in Idaho during 2011, 5 percentage points higher than the national average (figure 11, page 11). About 90% of frozen potato production goes into the foodservice market. Quick Service Restaurants (QSRs), such as McDonald's, are important customers for Idaho frozen potato products. As this sector expanded into global markets, they took Idaho fries with them. While frozen French fries and various forms of fries (curly, battered, etc.) are the dominant frozen potato product, plants in Idaho also produce other frozen potato products such as hash browns, wedges, tater drums, etc.

The major frozen processors located in Idaho include Lamb-Weston Conagra Foods, with plants in American Falls and Twin Falls; J.R. Simplot Company, with plants in Aberdeen, Caldwell, and Nampa; and McCain Foods, with a plant in Burley.

Idaho leads the nation in fresh (table stock) potato shipments, accounting for a third of all shipments. Fresh packers wash, sort, and package fresh potatoes for shipment within the U.S. and for export to Canada and Mexico. There are nearly 50 fresh pack sheds operating in Idaho, with the majority of the fresh pack sheds located in eastern Idaho (figure 12, page 11). Many sheds pack multiple labels, and a number of sheds now work under a consolidated sales desk with other packing sheds.

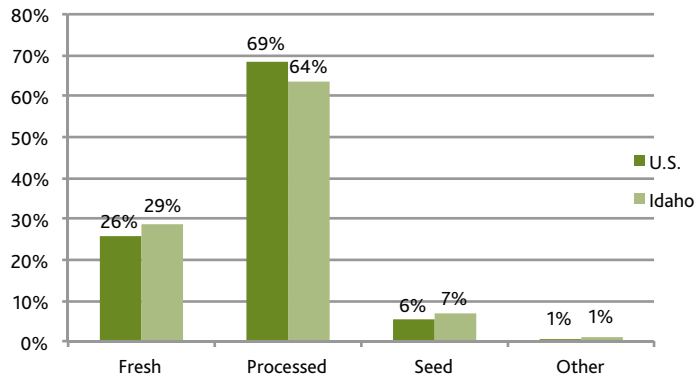

Figure 10. U.S. and Idaho potato production by category, 2011. Sources: Patterson, industry sources, USDA-NASS.

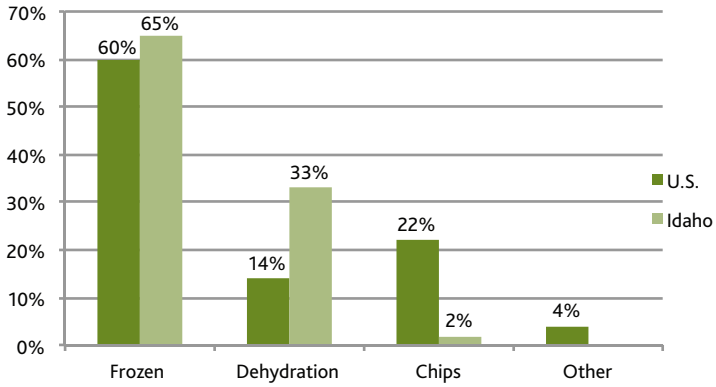

Figure 11. U.S. and Idaho potato processing by category, 2011. Sources: Patterson, industry sources, USDA-NASS.

Production of dehydrated potato products accounted for an estimated 33% of potatoes used by processors in Idaho during 2011 (figure 11). Dehydration processors are closely linked to the fresh potato industry. Potatoes that do not meet grade standards for the fresh market because of size or appearance are the primary source of potatoes for dehydrators. Nine of the plants making dehydrated products are located in eastern Idaho, and two are in the Magic Valley (figure 12). Idahoan and Basic American Foods dominate the dehydration market, both in Idaho and nationally. Basic American has plants in Rexburg, Shelley, and Blackfoot. Idahoan has plants in Idaho Falls, Lewisville, Ririe, and Rupert. Oregon Potato Company operates a dehydration plant in Burley, and Nonpareil operates a plant in Blackfoot. Those firms make dehydrated potato flakes, flour, slices, dices, and granules for consumer products, ranging from instant mashed potatoes to Pringles potato crisps.

The J.R. Simplot Company is building a new, state-of-the-art processing plant in Caldwell. When this plant is completed in 2014, the existing plant in Caldwell will be closed, along with plants in Nampa and Aberdeen. While the new plant is expected to employ 250 workers, 850 jobs will be lost when the older plants close. McCain Foods recently announced plans to expand their Burley plant by adding a third processing line. This will expand their contract acres and will add additional jobs.

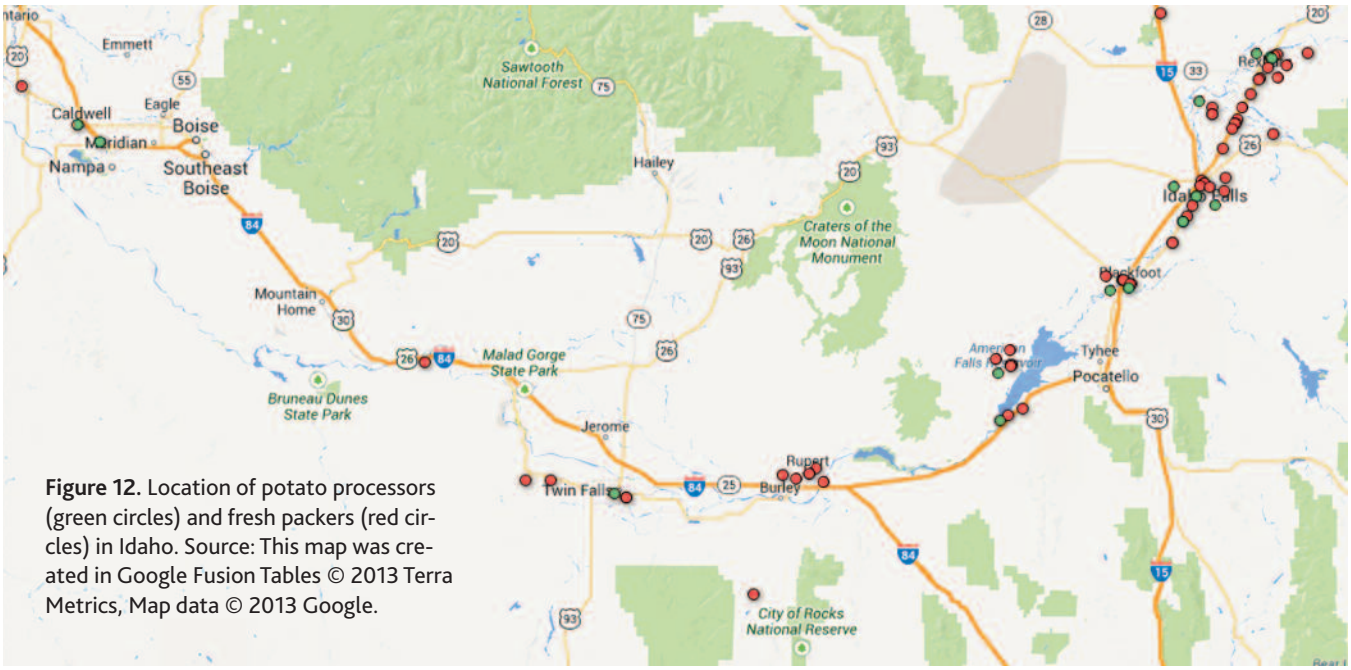

Figure 12. Location of potato processors (green circles) and fresh packers (red circles) in Idaho. Source: This map was created in Google Fusion Tables © 2013 Terra Metrics, Map data © 2013 Google.

Production and price trends

Idaho's role

Idaho produced 143.2 million cwt of potatoes in 2012, making Idaho the number one producer of potatoes in the U.S. Idaho has held the number one spot since 1957 and is expected to retain this position. Idaho produced 31% of the nation's potatoes, while Washington, in second place, produced 21%, and Oregon, in sixth place, produced 5%. The three Pacific Northwest states collectively produced 57% of the U.S. potato crop.

Acres and yield

While planted potato acres in Idaho moves up and down over time, the 20-year trend line shows a steady decline, with an average drop of roughly 5,000 acres per year. Potato acreage in Idaho peaked at 415,000 acres in 1996 and again in 2000 (figure 13, page 13). Planted acres hit a low of 295,000 a mere 10 years later. Since then acreage has increased. Over the past decade (2003–2012), planted acres averaged 331,000, a 16% decrease over the 396,000-acre average the previous decade (1993–2002). From 1993 to 2012, planted acres dropped by 45,000, or 12% (USDA-NASS).

Potato yield has steadily increased over the past 20 years (figure 13). The 20-year trend line shows an annual increase of 4 cwt per year. The average yield for the past decade (2003–2012) was 385 cwt per acre, while the average for the previous decade (1993–2002) was 345 cwt per acre. From 1993 to 2012, yield increased by 91 cwt per acre, or 28% (USDA-NASS).

Price and value of production

The overall price and value of potato production trends over the past 20 years have been positive, with the price for all potatoes increasing by 31% and the value of production increasing by 59% between 1992 and 2012 (figure 14, page 13). However, prices and value of production were also extremely volatile over this time period. The All Potato price hit a low of $3.85 in 1996 and a high of $8.10 in both 2010 and 2011, while value of production ranged from a low of $542 million in 2003 to a high of $1.04 billion in 2011 (figure 14). The market-year All Potato price over the past decade (2003–2012) averaged $6.30, which is a 29% increase over the previous decade's (1992–2002) average price of $4.88. The average value of production, however, increased by only 21% over the same time frame ($658 million to $795 million) because of a 7% decrease in production.

SWOT analysis

Strengths. Effective marketing programs, supported by a 12.5 cents per cwt potato tax paid by the grower and first handler, pay for national advertising and public relations programs, retail and foodservice programs, six field sales directors that call on all retail and foodservice customers, potato research, and international market development. This has led to consumer recognition of the "Famous Idaho Potato" brand, which allows premium pricing at retail. A marketing order ensures that potatoes shipped from Idaho continue to meet high quality standards. Now that Idaho is growing specialty varieties, Idaho is becoming a "one-stop shop" state.

Substantial capital investment in existing processing and fresh packing facilities, including a large dehydration industry, provides flexibility to growers. Also, the use of modern potato storage facilities allows Idaho to serve processing and fresh markets year round. Access to good rail and truck transportation is another plus for the industry.

Geographic dispersion across southern Idaho, in addition to a dry high desert environment with low disease pressure, reduce the need for fungicides as well as overall production risk to the industry. Also, the potato industry is well served by the University of Idaho and USDA-ARS potato researchers and extension specialists.

Irrigation helps produce consistently high-quality potatoes for the fresh and process markets. A sophisticated water storage system is employed to help manage water supplies subject to annual variations in snowpack.

Weaknesses. One weakness of potato production is the need for expensive specialized equipment. Economies of scale, especially with equipment, encourage expansion of potato acres in order to spread costs over more acres. Another weakness is a lack of profitable alternative crops, which has increased the frequency of potatoes in the rotation. Also, Idaho has a lower yield potential than some other potato-producing regions, making Idaho less competitive on a cost per cwt basis.

Distance to major markets and population centers is another weakness for Idaho potato production. Potato shippers' incentives appear to be volume-driven, which may work against growers' best interests. Finally, increasing potato yields, combined with growers who are unwilling to reduce acres, have resulted in supplies growing faster than demand, resulting in low potato prices.

Opportunities. Idaho has the production capacity to support new process or fresh pack facilities, or an expansion of existing facilities. Most of the opportunities

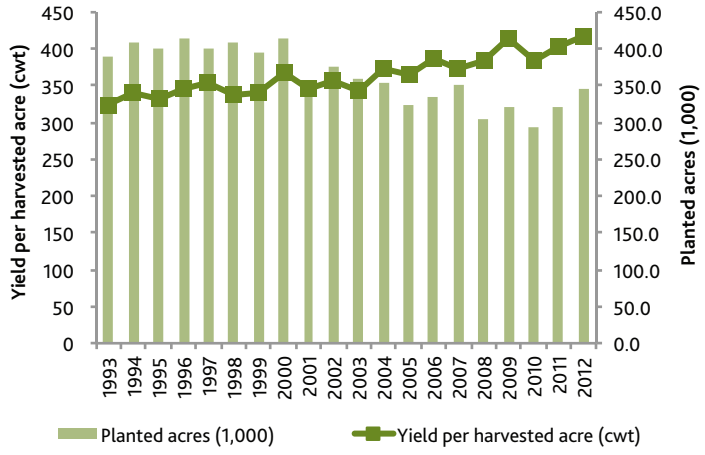

Figure 13. Idaho potato yield and planted acreage, 1993–2012. Source: USDA-NASS.

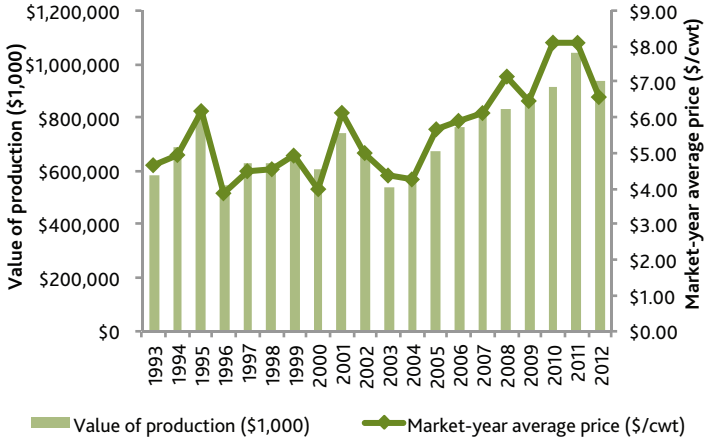

Figure 14. Idaho potato value of production and market-year average price, 1993–2012. Source: USDA-NASS.

for Idaho potatoes come from increasing consumer demand. Ways to increase demand include increasing consumers' awareness of the nutritional benefits of potatoes, beyond what the Idaho Potato Commission has done over the past 10 years; increasing consumption of potato products in Asia and Mexico; and increasing demand for organic and specialty potato varieties. Specialty varieties include a number of varieties that have not been commonly grown in the U.S., although they are popular in other countries, as well as novelty varieties. Yellow-fleshed varieties are the most common, but specialty varieties also include any number of colored varieties (purple, blue, etc.) and fingerlings.

Threats. A crucial element to maintaining a competitive potato industry in Idaho is public support for research and extension programs. This support, however, is declining just as new potato diseases and pests are emerging (e.g., zebra chip and cyst nematode) that can be both difficult and expensive to control.

Dietary concerns about potatoes (carbohydrates) and potato products (fried foods) are leading to a decline in per capita potato consumption in the U.S. Other negative effects on consumption of Idaho potatoes include the locavore movement and the expansion of sweet potato fries.

Production costs are increasing because of increased government and other regulations (e.g., Good Agricultural Practices, or GAP). Increasing transportation costs for both rail and truck also threaten the potato industry.

The potato industry also is losing prime agricultural land to urban encroachment, leading to more conflicts, higher production costs, and more restrictions on pesticide use. Another threat is increasing demand for limited water supplies from domestic, industrial, environmental, and recreational uses.

Sugarbeets

Economic contribution

The economic contribution of the sugarbeet processing industry in Idaho included **cash receipts of $894 million** in 2011 (IMPLAN). In addition, the sugarbeet processing industry **employed 1,449 people**, with **employee compensation of $61 million**. The **additional value to the Idaho economy** from the sugarbeet processing industry was **$87.5 million** in 2011.

Processing and location

The Amalgamated Sugar Company LLC is the only sugarbeet processing company currently operating in Idaho. Founded in 1897, Amalgamated was purchased in 1997 by the Snake River Sugar Company, a grower-owned cooperative. The firm processes sugarbeets grown in Idaho (95%) and Oregon (5%). Amalgamated manufactures a variety of consumer products that are marketed under its White Satin brand and brands of several retail grocery chains. The firm also sells products to industrial sugar users. Amalgamated sells beet pulp, molasses, and other by-products to food and feed manufacturers.

Although sugarbeets are grown across southern Idaho, the Magic Valley accounts for the largest share, with 60% of production. Southwestern Idaho accounts for 18%, and eastern Idaho accounts for 22% of production. All sugarbeets in Idaho are grown under irrigation. Processing facilities are also concentrated in the Magic Valley, with plants located in Paul and Twin Falls. The third Amalgamated plant is located in Nampa.

Production and price trends

Idaho's role

Idaho produced 6.4 million tons of sugarbeets in 2012, making it the second largest producer of sugarbeets in the U.S. Total U.S. sugarbeet production in 2012 was 35.4 million tons. Idaho produced 18% of the U.S. crop, and Oregon produced 1%, while Minnesota and North Dakota produced 35% and 17%, respectively.

Acres and yield

Sugarbeet acres are lower now than 20 years ago, although there has been upward movement in the past few years (figure 15, page 15). The fewest acres in the past 20 years were the 131,000 acres planted in 2008; this was due in part to an unusually wet spring when beets were being planted, as well as to growers switching to forages and grain, which were at record high prices. Planted acreage peaked at 212,000 acres in 2002.

Yield of sugarbeets in Idaho has increased steadily over the past 20 years (figure 15). For the decade from 1993 to 2002, sugarbeet yield in Idaho averaged 25.7 tons per harvested acre. In the past decade (2003–2012), the average yield per harvested acre was 31.7 tons, a 23% increase. Most of the yield increase corresponds to the introduction of Roundup Ready sugarbeets in 2006. The higher yields mean that fewer acres are needed to produce a crop that can be effectively processed given the limits of current processing facilities.

Price and value of production

The price received by Idaho growers over the past decade (2003–2011) averaged $45.85 per ton, a 12% increase over the previous decade (1993–2002).The marketing year average price for sugarbeets has risen in recent years, peaking at $65.40 per ton in 2011 (figure 16, page 15). A drop in the availability of sugar in both Asia and Brazil pushed sugar prices to record levels in recent years. The price of sugar has declined rapidly as world sugar supplies return to normal, leading to a drop in sugarbeet prices. The value of production for sugarbeets has followed a similar trend, peaking in 2011 at $395.9 million (figure 16). Value of production over the past decade averaged $252 million, which was 22% higher than the $207 million the previous decade.

SWOT analysis

Strengths. The Amalgamated Sugar Company continues to make capital investments for modernizing and improving the overall efficiency of its processing plants. A strong grower-owned cooperative helps growers control their destiny and keeps company earnings in Idaho. Sugar is a highly refined, high-value product that helps minimize Idaho's freight disadvantage when shipping to U.S. population centers. In addition, Idaho's experienced growers are committed to adopting new technology to produce high-quality sugarbeets at the lowest possible cost.

Weaknesses. Uncertainty about the future viability of the industry constrains its ability to expand sugarbeet processing beyond the capacity of existing sugar factories. The lack of accurate and timely data on sugar production, consumption, and export of Mexican sugar limits USDA's ability to effectively administer sugar policy and North American Free Trade Agreement (NAFTA) trade provisions. In general, the public lacks appreciation for the value and contribution to rural communities of agriculture and food processing.

Opportunities. Using the existing sugarbeet processing facilities to process other crops or to produce other products such as ethanol could reduce costs. The industry could also expand processing capacity or improve efficiency of existing facilities. Production costs

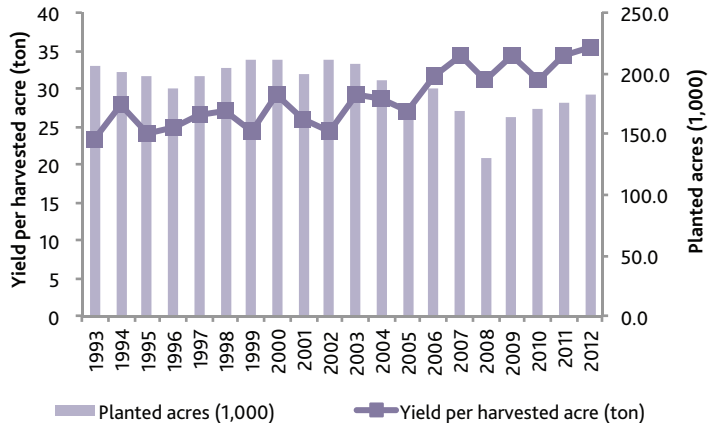

Figure 15. Idaho sugarbeet yield and production, 1993–2012. Source: USDA-NASS.

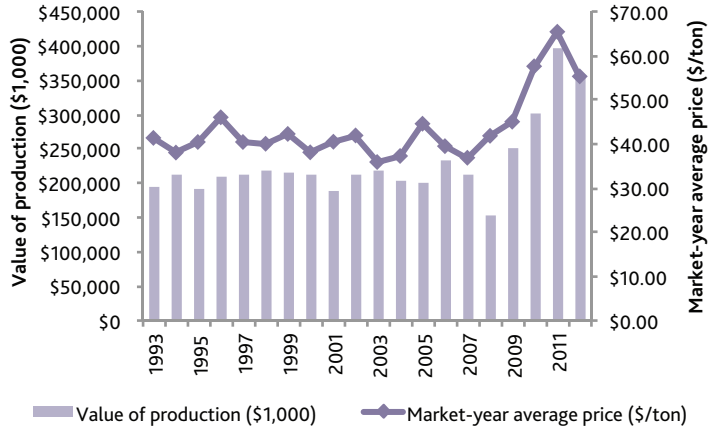

Figure 16. Idaho sugarbeet value of production and market-year average price, 1993–2011. Source: USDA-NASS.

could be reduced by implementing energy-saving measures both in the factory and in the field. Additional measures for reducing costs and increasing sugar production include adoption of biotechnology, new varieties, and improved production systems for reducing or eliminating yield-limiting disease and pest problems. Finally, the cooperative could explore opportunities for using its purchasing power to secure lower-priced inputs for grower members.

Threats. The sugarbeet industry is threatened by elimination or changes to the Farm Bill's sugar provisions, which have historically protected the domestic sugar industry from unregulated imports of inexpensive foreign sugar. It is unlikely that U.S. sugar producers will be able to compete in an unregulated sugar market if the prevailing world price continues to be negatively influenced by developed countries dumping subsidized sugar and by production in Third World countries that lack environmental and labor regulations such as those that U.S. producers must follow. Tightening emissions standards to reduce air quality problems in the Boise Valley, which is prone to atmospheric inversions in winter, may threaten the viability of the Nampa plant.

Deterioration of Idaho's farm-to-market roads and restrictive localized load limits hurt the industry's ability to move 6 million tons of beets from field to factory at the lowest cost. Declining support for publicly funded university and USDA-ARS research projects and personnel and university extension programs also makes it difficult to maintain a competitive industry. Restrictions or an outright ban on GMOs, including Roundup Ready sugarbeets, would make the industry less competitive.

The sugarbeet industry faces competition for land from other commodities, particularly from forage production for the dairy industry in the Magic Valley. It also is losing prime agricultural land to urban encroachment, leading to more conflicts, higher production costs, and more restrictions on pesticide use. Another threat is increasing demand for a limited water supply from domestic, industrial, environmental, and recreational uses.

Wheat

Economic contribution

The economic contribution of the wheat processing industry included **cash receipts of $41 million** in 2010. The wheat processing industry **employed 35 people**, with **employee compensation of $2 million**. The **additional value to the Idaho economy** from the wheat processing industry was **$6 million** in 2010.

Processing and location

Nearly all of Idaho's wheat production is shipped out of state as a bulk commodity. While Idaho wheat is a popular commodity in global markets, very little is processed in Idaho. Only an estimated 10% of Idaho's wheat crop leaves the state as a value-added product. One commercial wheat processor, Pendleton Flour Mill, is located in Blackfoot. The Blackfoot flour mill was opened by Fisher Mills in 1996 and expanded to its current size in 1999. Pendleton Flour Mill purchased the plant in 2001. Pendleton processes about 12 million bushels of wheat each year, which includes wheat produced in other states.

Production and price trends

Idaho's role

With total wheat production of 98 million bushels in 2012, Idaho accounted for 4.3% of U.S. production. Kansas was the number one wheat-producing state in the U.S. in 2012, producing 17% of the crop, while Idaho ranked seventh. Idaho ranked fifth in spring wheat production and eighth in winter wheat production. Like Oregon and Washington, the majority of Idaho's wheat acres (53%) are planted to soft white wheat (see table 1). However, Idaho produces significant amounts of all major market classes except soft red. Approximately 21% of Idaho's wheat acres are hard red spring, 14% are hard red winter, 8% are hard white, 2% are club, and 1.5% are durum (USDA-NASS, 2012).

Acres and yield

While the 20-year planted acreage trend for wheat is negative, the trend over the past 10 years is slightly positive. Over the past 2 decades, planted wheat acres in Idaho were highest in 1996, with 1.6 million acres (figure 17, page 17). The lowest number of planted acres was 1.15 million in 2002. Since that time, planted acreage has increased somewhat. However, the average planted acres over the past 10 years (1.308 million acres) is still below the levels of the previous decade (1.398 million acres). Yield for Idaho wheat has varied over the past 20 years (figure 17). The 20-year trend line shows only a 0.2 bushel per year increase. This has pushed the average yield over the past 10 years to 78.5 bushels per acre compared to 76.8 for the previous decade.

Price and value of production

The marketing year Idaho wheat price over the past decade has averaged $5.34 per bushel, which is a 65% increase over the $3.24 per bushel average from 1993 to 2002. Wheat prices trended sharply higher starting in 2006, but remain very volatile. The price for Idaho wheat averaged a record-breaking high of $8.20 per bushel in 2012 (figure 18, page 17). The value of wheat produced in Idaho has increased significantly in the past 20 years, due mainly to price increases (figure 18). In 1993, the value of production was $319.4 million, and in 2012 the preliminary numbers show value of production at $808.4 million. This is down slightly from the record of $813.4 million set in 2011.

Table 1. Wheat classes grown in Idaho, their characteristics, and typical uses.

	Characteristics	Uses
SOFT WHITE	Low protein but high yielding. Grown mainly in the Pacific Northwest and exported to Asia.	Soft white wheat is used for baking cakes, crackers, cookies, quick breads, and snack foods.
HARD WHITE	This is the newest class of U.S. wheat. It is similar to red wheat, but has a milder flavor. Only a small amount is exported at this time.	Hard white wheat is mainly used in yeast breads, hard rolls, bulgur, tortillas, and oriental noodles.
DURUM	Durum is the hardest U.S. wheat. Less than 5% of wheat exports are durum. The majority of U.S. production comes from North Dakota, which produces 70% to 80% of the U.S. crop each year.	Durum wheat is used to make semolina flour for pasta production.
HARD RED SPRING	This wheat contains the highest percentage of protein. The majority of the crop is grown in Montana, North and South Dakota, and Minnesota. This wheat is mainly exported to Central America, Japan, the Philippines, and Russia.	With its superior milling and baking characteristics, hard red spring wheat produces the best flour for baking bread.
HARD RED WINTER	This class of wheat dominates U.S. production and is mainly produced in the Great Plains states. It has a wide range of protein content plus good baking and milling characteristics. Major foreign buyers include Russia, China, Japan, Morocco, and Poland.	Hard red winter wheat is used to produce bread, rolls, and, to a lesser extent, sweet goods and all-purpose flour.

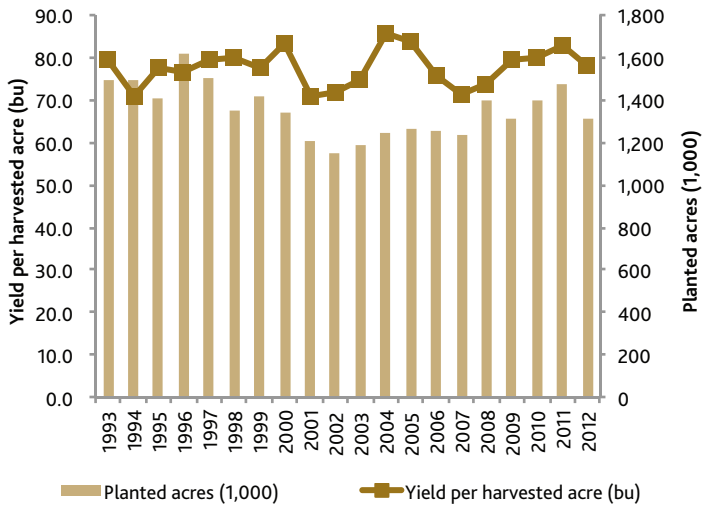

Figure 17. Idaho wheat yield and production, 1993–2012. Source: USDA-NASS.

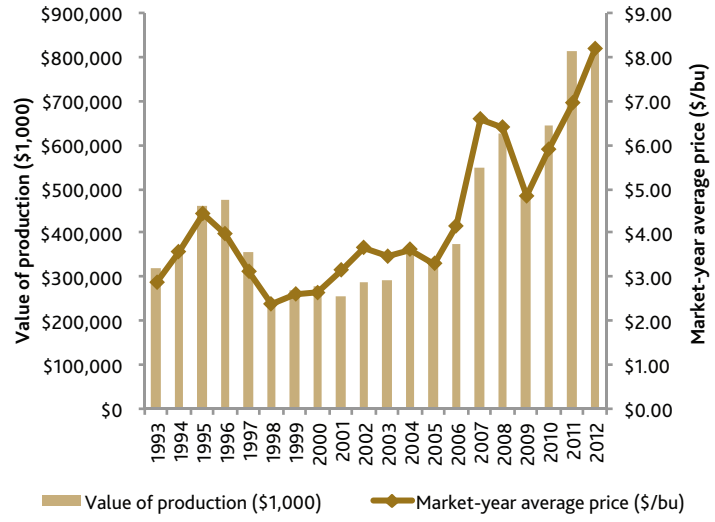

Figure 18. Idaho wheat value of production and market-year average price. Source: USDA-NASS.

SWOT analysis

Strengths. Idaho's wheat production is geographically dispersed across the state. Growing conditions and irrigation resources in Idaho make it possible to consistently produce high-quality wheat. All major market classes of wheat, except soft red, are grown in Idaho, and the grain handling infrastructure is equipped to segment the crop by multiple classes. Good rail transportation in Idaho is another advantage for the wheat industry. Idaho is well positioned to meet increasing foreign demand, especially in Asian markets.

Weaknesses. Some growers view wheat as a rotational crop for potatoes or sugarbeets rather than as a cash crop. Wheat is less competitive than crops that have a GMO option. Most of the wheat grown in Idaho is exported as an unprocessed commodity. The strong historical reliance on government farm program payments leaves barley/wheat growers vulnerable to potential changes in farm policy.

Opportunities. Idaho has the crop production capacity to support new value-added products or expansion of the one existing flour mill located in the state. Monsanto is relocating all of its wheat breeding research to a new facility in the Twin Falls area, due to its mild, irrigated, high-yielding environment, which they feel is ideal for wheat-breeding research.

Threats. A price/cost squeeze occurs when the impact of increases in production costs outweigh the impact of price changes. Such a situation could threaten profits for wheat growers, particularly in the higher cost irrigated production areas. Changes in weather patterns continue to favor expanded winter wheat production in Canada, where lower costs of production, particularly land costs, could reduce wheat prices for U.S. producers. Increasing rail transportation rates also threaten wheat growers. Domestic demand is declining as per capita consumption falls due to low-carbohydrate diets and the growing demand for gluten-free carbohydrates. Finally, if public support for research and extension programs continues to fall, Idaho wheat's competitiveness could decline.

Limitations and future directions

This publication summarizes the current production, processing, and value-added opportunities for six of Idaho's major commodities. We attempted to answer some of the questions and address some of the issues that have been raised recently by the Idaho Legislature and other policy makers. Given the complexity and dynamic nature of Idaho agriculture, this effort is a work in progress. We are certain that requests for additional information and analysis on these six commodities, as well as for other commodities not included, will arise. A similar analysis for other commodities may not always be possible, given the lack of publicly available data for some commodities. For example, little or no information is consistently collected by USDA or other entities relative to acreage, production, and distribution of seed crops in Idaho.

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Appendix

Table A-1. Employment, location quotients (LQ), and SWOT analysis for Idaho food manufacturing industries.

Industry	Employment[1]		LQ		LQ change	SWOT[2]
	2011	2004	2011	2004		
Dog and cat food manufacturing	75	0	0.7	0.0	0.7	Opportunity
Other animal food manufacturing	313	446	1.9	2.6	-0.6	Threat
Flour milling and malt manufacturing	288	127	3.2	1.3	1.9	Strength
Wet corn milling	107	31	1.7	0.8	0.9	Strength
Soybean and other oilseed processing	45	0	1.0	0.0	1.0	Opportunity
Beet sugar manufacturing	1,449	1,338	44.5	54.0	-9.4	Threat
Confectionery manufacturing from purchased chocolate	60	48	0.4	0.3	0.1	Opportunity
Non-chocolate confectionery manufacturing	232	289	2.6	2.8	-0.2	Threat
Frozen food manufacturing	4,911	4,106	10.6	9.0	1.6	Strength
Fruit and vegetable canning, pickling, and drying	2,567	3,195	5.8	7.1	-1.3	Threat
Fluid milk and butter manufacturing	395	348	1.4	1.2	0.2	Strength
Cheese manufacturing	1,983	1,503	9.0	8.0	1.0	Strength
Dry, condensed, and evaporated dairy product manufacturing	189	72	2.6	1.0	1.6	Strength
Ice cream and frozen dessert manufacturing	10	82	0.1	0.8	-0.7	Weakness
Animal (except poultry) slaughtering, rendering, and processing	1,526	1,966	1.1	1.4	-0.3	Threat
Seafood product preparation and packaging	378	424	2.0	2.0	0.0	Threat
Bread and bakery product manufacturing	366	432	0.4	0.3	0.1	Opportunity
Cookie, cracker, and pasta manufacturing	90	153	0.3	0.6	-0.2	Weakness
Tortilla manufacturing	156	147	1.7	1.8	-0.1	Threat
Snack food manufacturing	10	27	0.0	0.1	-0.1	Weakness
Coffee and tea manufacturing	54	60	0.7	0.9	-0.2	Weakness
Seasoning and dressing manufacturing	334	380	1.9	2.7	-0.8	Threat
All other food manufacturing	182	87	0.6	0.3	0.3	Opportunity
Soft drink and ice manufacturing	341	335	0.7	0.7	0.0	Weakness
Breweries	111	39	0.8	0.3	0.5	Opportunity
Wineries	141	108	0.6	0.7	-0.1	Weakness
Distilleries	44	17	1.1	0.5	0.5	Strength
Total food and beverage manufacturing	16,363	15,765	1.9	1.8	0.1	Strength
Total employment	874,414	836,338				

Source: IMPLAN, 2004 and 2011.

[1]The sum of employment by industry does not exactly equal the total due to rounding.

[2]SWOT= Strengths, weaknesses, opportunities, and threats

Table A-2. Output ($1,000), location quotients (LQ), and SWOT analysis for Idaho food manufacturing industries.

Industry	Output ($1,000)[1] 2011	Output ($1,000)[1] 2004	LQ 2011	LQ 2004	LQ change	SWOT[2]
Dog and cat food manufacturing	96,425	0	0.8	0.0	0.8	Opportunity
Other animal food manufacturing	341,493	304,596	2.2	3.1	-0.9	Threat
Flour milling and malt manufacturing	317,810	111,721	3.6	2.0	1.6	Strength
Wet corn milling	241,237	33,336	1.8	0.9	0.9	Strength
Soybean and other oilseed processing	74,166	5,099	1.1	0.0	1.1	Strength
Beet sugar manufacturing	894,070	723,088	49.3	65.3	-16.0	Threat
Confectionery manufacturing from purchased chocolate	18,916	12,708	0.4	0.3	0.1	Opportunity
Nonchocolate confectionery manufacturing	80,593	80,886	2.7	3.3	-0.6	Threat
Frozen food manufacturing	1,592,206	1,178,617	12.4	11.1	1.3	Strength
Fruit and vegetable canning, pickling, and drying	1,248,191	1,291,860	6.5	8.2	-1.7	Threat
Fluid milk and butter manufacturing	407,845	188,326	1.6	1.5	0.1	Strength
Cheese manufacturing	1,638,690	1,077,029	10.3	9.8	0.4	Strength
Dry, condensed, and evaporated dairy product manufacturing	145,546	51,470	2.8	1.1	1.8	Strength
Ice cream and frozen dessert manufacturing	3,673	32,086	0.1	0.8	-0.7	Weakness
Animal (except poultry) slaughtering, rendering, and processing	452,861	739,769	1.3	1.7	-0.4	Threat
Seafood product preparation and packaging	135,357	103,636	2.2	2.4	-0.2	Threat
Bread and bakery product manufacturing	52,991	43,059	0.4	0.3	0.1	Opportunity
Cookie, cracker, and pasta manufacturing	39,638	55,381	0.4	0.7	-0.3	Weakness
Tortilla manufacturing	31,874	21,646	2.0	2.1	-0.2	Threat
Snack food manufacturing	8,221	14,205	0.1	0.1	-0.1	Weakness
Coffee and tea manufacturing	40,163	28,507	0.8	1.1	-0.3	Weakness
Seasoning and dressing manufacturing	182,736	141,027	2.2	3.0	-0.8	Threat
All other food manufacturing	53,384	21,078	0.6	0.4	0.3	Opportunity
Soft drink and ice manufacturing	236,318	174,596	0.8	0.8	0.0	Weakness
Breweries	102,476	19,922	0.7	0.2	0.5	Opportunity
Wineries	43,562	31,012	0.6	0.7	-0.1	Weakness
Distilleries	43,411	10,753	0.7	0.3	0.4	Opportunity
Total food and beverage manufacturing	8,527,507	6,496,742	2.2	2.3	-0.1	Threat
Total output	117,262,807	85,857,147				

Source: IMPLAN, 2004 and 2011.

[1]The sum of output by industry does not exactly equal the total due to rounding.

[2]SWOT= Strengths, weaknesses, opportunities, and threats

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