2019 Contribution of the Washington Dairy Sector to the Washington Economy

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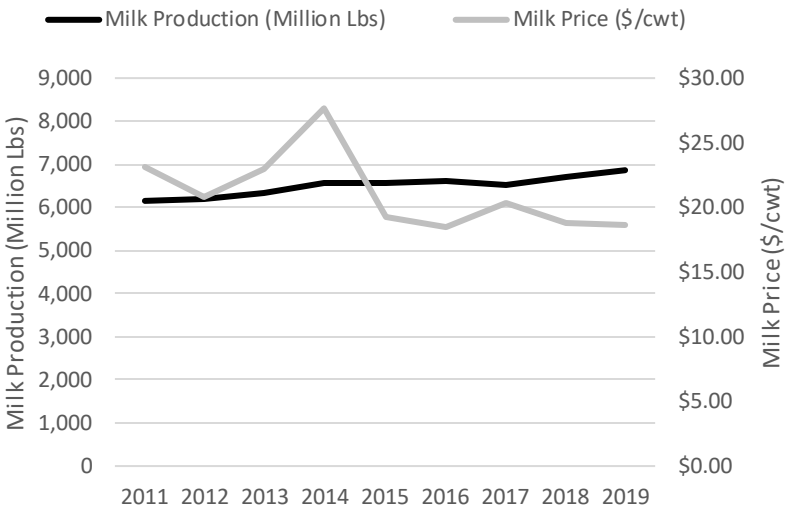
Figure 1: *Milk Production and Prices in Washington State*



Historic Milk Prices & Volume

Since 2011 Washington Dairy prices have fallen 20% (from $23.18 $/cwt in 2011 to $18.60 in 2019) and increases in volume have risen only slightly (6.2 billion lbs. to 6.9 billion lbs.) see Figure 1. The net result is that dairies have, and are continuing, to struggle in Washington. Total value of production has remained stagnate at $1.27 billion dollars in nominal terms but fallen in real terms after accounting for the Dairy exports have actually fallen recently but part of that is due to increased local processing. Increases in on-farm and off-farm processing have grown, causing the overall contributions of the dairy sector in Washington to rise from $1.44 billion in Gross State Product (GSP) to $1.76 billion in GSP (22% growth in contributions to GSP).

Shifts in Production Technology

Income is a component of GSP and tends to be a more stable number for comparison over time, but over the past decade income has shifted drastically in the dairy sector. Wage and benefit payments have increased in part because dairies are becoming more capital intensive and often requires employees with specialized skill sets that command a wage premium. Table 1 shows how the cost structures have changed for dairies from 2011 to 2019. The shift to reducing annual operating expenses towards more technical labor and capital combinations demonstrates an industry strategy of moving towards long term sustainability.

The shift in production technology, from labor and towards capital, has resulted in a reduction in the value of in-state transactions while still increasing the value of raw and processed product being produced. In short, dairies are contributing more to the states gross state product, but less to the number of transactions within the state.

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Table 1: *Average Reported Expenses and Percent Change*

Expense Category	2011 survey	2019 survey	% Change
Annual labor expense	$456,121	$732,047	60%
Annual benefit expense	$73,526	$149,679	104%
Annual capital expense	$188,691	$420,264	123%
Annual operating expense	$4,717,280	$4,272,614	-9%

Measures of Economic Contributions

We report impacts on a GSP basis because it is a consistent measure over time. GSP avoids double counting of production values and, as such, is a more inherently stable measure. Sales, sometimes referred to as output, yields much larger figures, figures that tend to get remembered even though people aren't thinking about what the numbers actually mean. Sales numbers are equivalent to summing up all the "cash register receipts" in the state. The problem with this figure is that there is a significant amount of double counting. A great example of this is the value of milk being counted once when it is sold from a dairy to a processor, again when processed cheese is sold to a pizza parlor, and yet again when the pizza is sold to a customer. The problem here is that the value of the milk was counted three times when it should have only been counted once. Sales always exceed gross state product.

For the sake of transparency, all measures of contributions, Sales (the largest measure), GSP, Income (the narrowest measure), and full-time equivalent employment, should be reported, but the GSP measure is the one that should be understood as the actual contributions. Income is a subset of GSP and reflects the portion of GSP that households get to take home. It is not a complete measure of household wellbeing but is highly related to such measures, Employment is calculated by taking the income measures and dividing by average full time wage rates to get the number of full time equivalent jobs supported by, in this case, the dairies. Table 2 shows the 2011 and 2019 GSP contributions of the Washington dairy sector broken out by the industries within the sector.

Table 2: *Dairy Sector Contributions to Gross State Product and Percent Change*

Dairy Industries	2011	2019	% Change
Dairy Production	$894,843,263	$1,239,874,550	39%
Dairy Manufacturing	$470,553,751	$486,712,948	3%
Cull Cow	$75,563,440	$35,504,727	-53%[3]
Dairy Sector Contributions	***$1,440,960,455***	***$1,762,092,225***	***22%***

Washington Dairy Contributions: state and regional results

Washington is broken into four distinct dairy regions: Northwest, Southwest, Central, and Eastern. Table 3 shows the regions, number of dairies, and values of production. Even though there are more dairies in the Northwest region, they tend to be smaller and have less processing than in the Central region.

[3] We suspect that many cull cows are getting processed in Idaho with the opening of a new cull processing plant there.

Table 3: *Regional Descriptions and Data*

Region	Counties*	Dairies	Production ($)
Northwest	San Juan, Whatcom, Skagit, Snohomish, King, Clallam	158	$241,781,696
Southwest	Kitsap, Pierce, Thurston, Lewis, Pacific, Wahkiakum, Cowlitz, Clark, Skamania, Klickitat	67	$63,316,505
Central	Grant, Yakima, Benton, Franklin	78	$818,363,686
Eastern	Stevens, Spokane, Pend Oreille	12	$5,162,112
Washington	***All Counties***	***322***	***$1,128,624,000***

* The small dairies in Okanogan, Chelan, Kittitas, Whitman, and Lincoln are captured in the state totals but are not located in a dairy oriented region of the state.
Source: WA Open Data Portal, IMPLAN, USA Trade Online

As raw and processed dairy products are exported out of the region or sate, new dollars are brought into the region or state. Contribution analysis tracks the duration and patterns of those dollars as they ripple through the economies. The value created by those dollars in terms of increases in Gross State Product, Incomes, and employment are captured in Table 4. It is worth noting that the sum of the regional metrics will not sum to the state metrics for a few reasons: 1) dairy products exported from the state will not count interstate transactions (e.g., the Northwest region exports raw milk to the Central region for processing), 2) money will ripple through the state's economy for longer periods of time than it will ripple through a smaller sub-state region, and 3) the production technologies, efficiencies, and supply chains in each region differ.

Table 4: *State and Regional Contributions by Type*

Contribution Type	Sales	Gross State Product (GSP)	Income	Employment
Eastern	$145,520,125	$46,898,168	$25,907,677	491
Central	$1,744,575,619	$758,082,765	$561,591,691	6,943
Northwest	$1,548,377,353	$585,984,929	$352,100,007	4,966
Southwest	$373,335,355	$112,830,097	$63,050,360	1,103
Washington	***$4,204,298,504***	***$1,762,092,225***	***$1,129,960,298***	***15,694***

The overall contributions of the Dairy sector to the state of Washington have grown because of increased efficiencies and production practices. Even as prices have been falling and production volume has remained flat, the capitalization of the sector has led to a 22% increase in overall value to the state's bottom line, Gross state product.