

# Economic Impact Study of the British Columbia Dairy Industry

*September 2020*

Prepared by:

**MNP**  
LLP

## Study of the BC Dairy Industry

Prepared by MNP LLP

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# 1. EXECUTIVE SUMMARY

## Background and Study Purpose

The BC Dairy Association (“BC Dairy”) is a not-for-profit association that represents the BC dairy farmers, and it is dedicated to educating British Columbians on milk, dairy farming and nutrition. BC Dairy engaged MNP LLP (“MNP”) to conduct an economic impact study of the BC dairy industry (“the Industry”).

## Overview of the Industry

For purposes of this study, the Industry is comprised of dairy producers or farmers, which operate farms and produce raw milk, and dairy processors, which take that raw milk and process it into a broad range of value-added products such as fluid milk, cheese, yogurt, butter, and ice-cream.

**Figure A: Overview of the Industry**

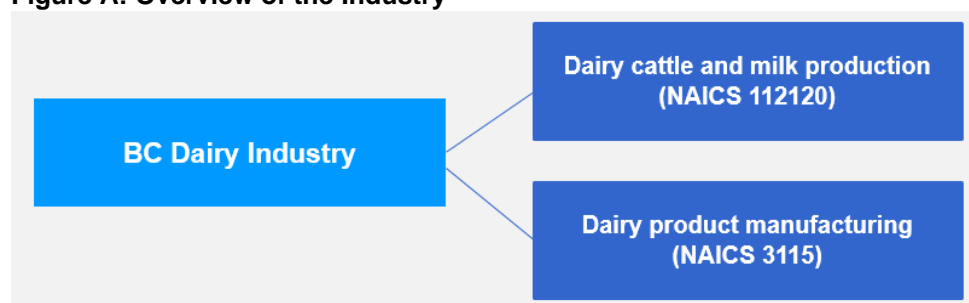


Table A summarizes the key statistics of the Industry in 2019.

**Table A: Key Industry Statistics in 2019**

- There were 469 dairy farms across BC with a total of approximately 82,500 dairy cows.<sup>1</sup>
- BC dairy farmers and dairy processors generated combined revenues of approximately \$2.2 billion.
  - Dairy farmers produced over 840 million litres of milk valued at \$683.1 million and dairy processors converted over 352 million litres of raw milk into fluid milk and over 476 million litres into non-fluid dairy products, generating sales of goods manufactured of approximately \$1.47 billion.<sup>2,3,4,5,</sup>
- Milk is the largest land-based agricultural commodity in BC in terms of farm cash receipts, accounting for 18 percent of BC's total farm cash receipts.<sup>6</sup>
- In BC, there were 51 provincially licenced dairy processors, of which 28 are federally licenced.<sup>7</sup>

<sup>1</sup> Statistics Canada. "Number of farms, dairy cows and dairy heifers". <https://www.dairyinfo.gc.ca/eng/dairy-statistics-and-market-information/farm-statistics/farms-dairy-cows-and-dairy-heifers/?id=1502467423238>

<sup>2</sup> BC Milk Marketing Board.

<sup>3</sup> Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x1,000). Accessed on April 20, 2020.

<sup>4</sup> BC Milk Marketing Board. "Annual Report for the 2018/2019 Dairy Year". July 31, 2019.

<sup>5</sup> Statistics Canada. Table 16-10-0048-01 Manufacturing sales by industry and province, monthly (x1,000). Accessed on July 29, 2020.

<sup>6</sup> Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x1,000). Accessed on April 20, 2020.

<sup>7</sup> BC Farm Industry Review Board. "B.C. Milk Industry 2019". Available here: [https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/organizational-structure/boards-commissions-tribunals/bc-farm-industry-review-board/regulated-marketing/2019\\_milk\\_industry\\_snapshot\\_bcfirb.pdf](https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/organizational-structure/boards-commissions-tribunals/bc-farm-industry-review-board/regulated-marketing/2019_milk_industry_snapshot_bcfirb.pdf)



## Economic Impacts of the Industry in 2019

Dairy producers and dairy processors create economic impacts through spending on employees and support staff, as well as spending on goods and services (e.g., equipment purchases, operating supplies, transportation expenses). Direct economic impacts are those that are created within the operations of dairy producers and dairy processors, while indirect and induced impacts are created with suppliers and other businesses.

Table A summarizes the estimated economic impacts generated by dairy production and dairy processing in BC in 2019.

**Table A: Estimated Economic Impacts of the Industry in 2019**

	Output (millions)	GDP (millions)	Employment (FTEs)	Federal Taxes (millions)	Provincial Taxes (millions)	Municipal Taxes (millions)
<b>Economic Impacts of Dairy Production</b>						
<b>Direct</b>	\$709	\$164	4,230	\$20	\$13	\$2
<b>Indirect</b>	\$620	\$260	2,740	\$30	\$22	\$6
<b>Induced</b>	\$149	\$96	650	\$15	\$16	\$4
<b>Sub-Total</b>	<b>\$1,478</b>	<b>\$520</b>	<b>7,620</b>	<b>\$65</b>	<b>\$51</b>	<b>\$12</b>
<b>Economic Impacts of Dairy Processing</b>						
<b>Direct</b>	\$1,726	\$411	2,330	\$46	\$30	\$4
<b>Indirect</b>	\$379	\$173	1,700	\$20	\$15	\$4
<b>Induced</b>	\$188	\$121	820	\$19	\$21	\$6
<b>Sub-Total</b>	<b>\$2,292</b>	<b>\$705</b>	<b>4,850</b>	<b>\$85</b>	<b>\$66</b>	<b>\$13</b>
<b>Total</b>	<b>\$3,770</b>	<b>\$1,225</b>	<b>12,470</b>	<b>\$150</b>	<b>\$117</b>	<b>\$25</b>

## Economic Impacts by Region

Table B presents the estimated economic impacts of the Industry by region in BC in 2019. As shown in the table, the Fraser Valley accounted for approximately 91 percent of total output, total GDP, total employment and total tax revenues in 2019. The Okanagan accounted for the next largest share of impacts (5 percent), while the remaining regions each accounted for between 0.1 and 2.5 percent of the economic impacts of the Industry in 2019.

**Table B: Estimated Economic Impacts of the Industry by Region in 2019**

	Total Output (millions)	Total GDP (millions)	Total Employment (FTEs)	Total Taxes (millions)	Average Share of Total Economic Impacts
Fraser Valley	\$3,431	\$1,106	10,725	\$263	91%
Okanagan	\$185	\$65	953	\$16	5%
Vancouver Island	\$92	\$32	472	\$8	2.4%
Kootenays	\$24	\$8	122	\$2	0.6%
Cariboo	\$22	\$8	114	\$2	0.6%
Bulkley Valley	\$13	\$5	69	\$1	0.3%
Peace River	\$3	\$1	15	\$0.3	0.1%
<b>Total</b>	<b>\$3,770</b>	<b>\$1,225</b>	<b>12,470</b>	<b>\$292</b>	<b>100%</b>

## Comparison with Other Industries

To provide perspective on the size of the economic impacts of the Industry, it is useful to compare the impacts with those created by other industries. The following are comparisons of the Industry's impacts with the following important industries in BC.

- **New Home Construction.** The total employment supported by the Industry (12,470 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 4,200 new homes in BC<sup>8</sup>.
- **Mining Industry.** The direct employment supported by the Industry (6,560 FTEs) in 2019 was roughly two-thirds of that generated by the BC mining industry (10,196 FTEs) in 2017.<sup>9</sup>

<sup>8</sup> Canadian Home Builders' Association, Economic Impacts of New Home Construction – British Columbia 2018, Available here: <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/InformationStatistics/Impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf>

<sup>9</sup> PWC, 50 Years On - The Mining Industry in British Columbia 2017, Available here:

- **High-End Television Series.** The total GDP created by the Industry (\$1.2 billion) was equivalent to the GDP that would be created from approximately 18 high-end television productions in BC.<sup>10</sup>

## Broader Contributions

In addition to creating economic impacts, the Industry creates and enables broader economic, social, and environmental contributions in BC. These contributions include:

- Community involvement and volunteerism.
- Environmental sustainability.
- Employment and training.
- Support and development of related spin-off companies.
- Opportunities for value-added processing.
- Rural community development and sustainability.

For examples of case studies that describe some of the broader contributions that arise from the Industry, please refer to **Section 4** of the report.

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[https://www.pwc.com/ca/en/mining/publications/p386537\\_release5\\_en-v2.pdf](https://www.pwc.com/ca/en/mining/publications/p386537_release5_en-v2.pdf)

<sup>10</sup> Motion Picture Association, Economic Impacts of Once Upon A time, Available here: <https://www.mpa-canada.org/wpcontent/uploads/2016/02/Economic-Impacts-of-Once-Upon-a-Time.pdf>



## 2. INTRODUCTION





## 2.1 Background and Study Purpose

The BC Dairy Association (“BC Dairy”) is a not-for-profit association that represents the BC dairy farmers, and it is dedicated to educating British Columbians on milk, dairy farming and nutrition.<sup>11</sup> BC Dairy engaged MNP LLP (“MNP”) to conduct an economic impact study of the BC dairy industry (“the Industry”), including contributions to provincial output, GDP, employment, and government tax revenues. The scope of this engagement included:

- Quantifying the economic contributions of the Industry.
- Identifying and describing some of the broader economic and social contributions of the Industry through the use of case studies.

## 2.2 MNP’s Approach

In preparing this report, MNP carried out the following activities:

- Conducted secondary research on the Industry through publicly available statistics, articles, and reports.
- Estimated the economic impacts of the Industry using an input-output methodology with multipliers published by Statistics Canada.
- Estimated the economic impacts of the Industry by region in BC.
- Conducted interviews with Industry stakeholders and prepared three case studies to describe some of the broader economic and social contributions of the Industry.

## 2.3 Report Limitations

This report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or a substitute for personalized, professional advice.

We have relied upon the completeness, accuracy and fair presentation of all information and data obtained from public sources. The accuracy and reliability of the findings and opinions expressed in the presentation are conditional upon the completeness, accuracy and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions for business or investment purposes and disclaim any liability to any party who relies upon them as such.

Additionally, the findings and opinions expressed in the presentation constitute judgments as of the date of the presentation and are subject to change without notice. MNP is under no obligation to advise of any change brought to its attention which would alter those findings or opinions.

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<sup>11</sup> BC Dairy, About, Available here: <https://bcdairy.ca/about>

### 3. OVERVIEW OF THE BC DAIRY INDUSTRY



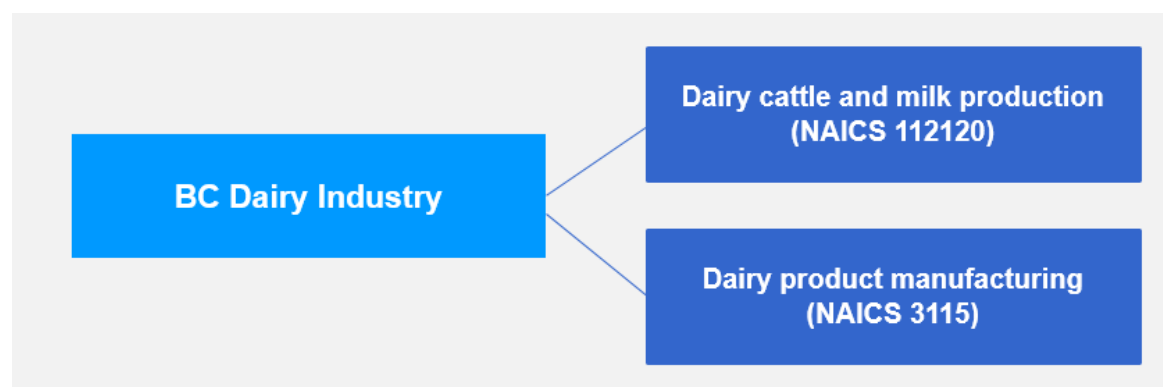
### 3.1 Definition of the Industry

As shown in Figure 1, the Industry is comprised of businesses classified into the following two North American Industry Classification System (“NAICS”) Codes:

- **Dairy cattle and milk production (NAICS 112120)** - This industry group comprises establishments primarily engaged in milking dairy cattle.
- **Dairy product manufacturing (NAICS 3115)** - This industry group comprises establishments primarily engaged in manufacturing dairy products such as cheese, yogurt, butter, and ice-cream.

For further subindustry definitions as defined by Statistics Canada, please refer to **Appendix A**.

**Figure 1: Overview of the Industry**



*Source: Statistics Canada. North American Industry Classification System.*

For purposes of this study, dairy cattle and milk production was categorized as “dairy production” and dairy product manufacturing was categorized as “dairy processing”.



## 2.1 Overview of the Industry

As noted in the earlier section of this report, the Industry is comprised of dairy producers, which operate farms and produce raw milk, and dairy processors, which take that raw milk and process it into a broad range of value-added products. The Industry is one of several in Canada operating under a supply management system, where through production licenses, milk production is balanced on a regional basis with local consumption. Other supply-managed industries include the broiler chicken, broiler hatching egg, turkey, and table egg industries.<sup>12</sup>

### DAIRY PRODUCTION

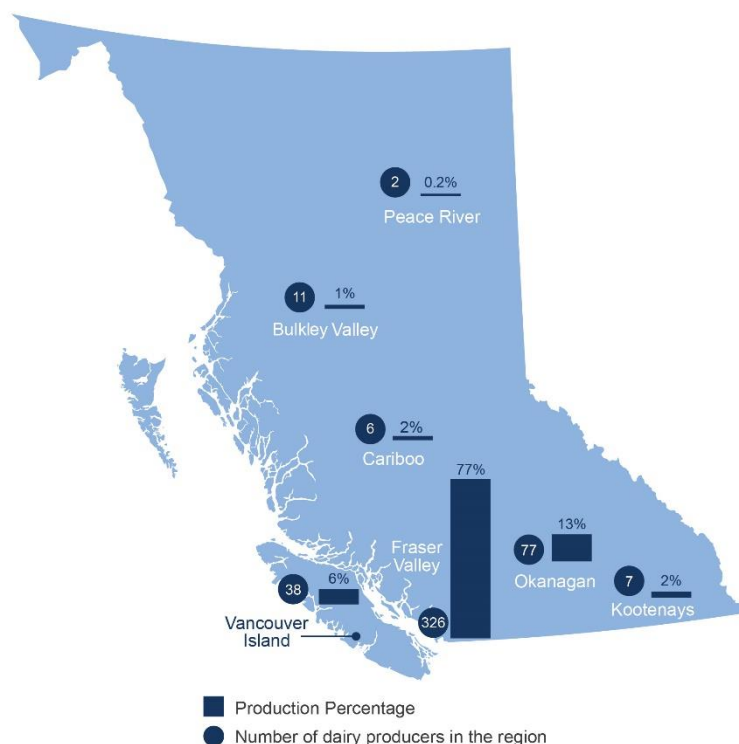
In 2019, there were 469 dairy farms across BC with a total of approximately 82,500 dairy cows,<sup>13</sup> and dairy farmers produced over 840 million litres of milk valued at \$683.1 million.<sup>14,15</sup> Milk is the largest land-based agricultural commodity in BC in terms of farm cash receipts, accounting for 18 percent of BC's total farm cash receipts of \$3.6 billion.<sup>16</sup>

The volume of milk production in BC grew 22 percent between 2012 and 2019, while farm cash receipts increased 29 percent in the same period. The number of dairy farmers in the province declined 8 percent in that period.<sup>17</sup>

The Fraser Valley is home to 70 percent of all dairy farms in the province, while 16 percent are in the Okanagan, and 8 percent are on Vancouver Island. The remaining 6 percent of dairy farms were located in the Bulkley Valley, Cariboo, Kootenays, and Peace River regions.<sup>18</sup> Figure 2 shows the number of dairy farms and are of milk production in BC by region.

In general dairy farms are family-owned and operated.

**Figure 2: BC Dairy Farms and Milk Production by Region**



<sup>12</sup> Government of British Columbia. "Supply Management in Regulated Marketing". Available here:

<https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/boards-commissions-tribunals/bc-farm-industry-review-board/regulated-marketing/general-supervision/supply-management>

<sup>13</sup> Statistics Canada. "Number of farms, dairy cows and dairy heifers". <https://www.dairyinfo.gc.ca/eng/dairy-statistics-and-market-information/farm-statistics/farms-dairy-cows-and-dairy-heifers/?id=1502467423238>

<sup>14</sup> BC Milk Marketing Board.

<sup>15</sup> Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x1,000). Accessed on April 20, 2020.

<sup>16</sup> According to 2019 data on farm cash receipts from unprocessed milk from bovine. Source: Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x1,000). Accessed on July 29, 2020.

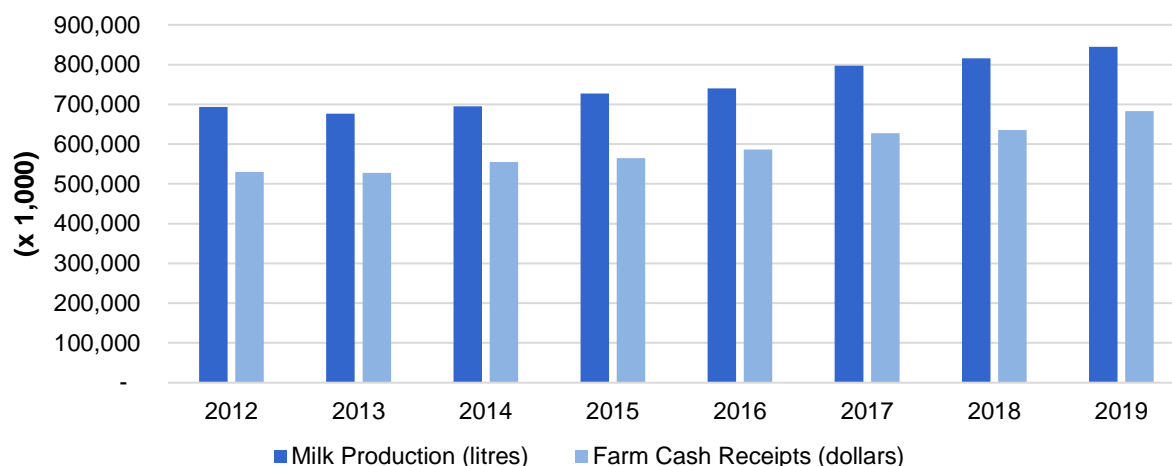
<sup>17</sup> According to 2019 data on farm cash receipts from unprocessed milk from bovine. Source: Statistics Canada. Table 32-10-0045-01 Farm cash receipts, annual (x1,000). Accessed on July 29, 2020.

<sup>18</sup> BC Milk Marketing Board. "Annual Report for the 2018/2019 Dairy Year". July 31, 2019.

In addition to supplying milk, dairy farms support the beef cattle industry. Male cattle and older milking cows which are no longer productive are periodically culled from dairy cow herds and sold to cattle farms or beef processors.

Figure 3 shows the volume and value of milk production in BC between 2012 and 2019.

**Figure 3: Volume and Value of BC Milk Production**



BC dairy farmers supply milk to two main markets: fluid milk and industrial dairy products. Milk sold to the fluid milk market represents approximately 42 percent of total milk production. The remaining 58 percent of milk produced is used to manufacture value-added dairy products.<sup>19</sup>

## DAIRY PROCESSING

In BC, there are 51 provincially licenced dairy processors, of which 28 are federally licenced.<sup>20</sup> Dairy processors vary in size from small, on-farm operations to large multinational corporations (e.g., Saputo, Agropur and Parmalat), with most located in the Fraser Valley.

Dairy processors produce a wide range of dairy products including fluid milk, cheese, butter, yogurt, and ice cream. During the 2018/19 dairy year, dairy processors converted over 352 million litres of raw milk into fluid milk and over 476 million litres into non-fluid dairy products, generating sales of goods manufactured of approximately \$1.47 billion.<sup>21,22,23</sup>

<sup>19</sup> Statistics Canada. Table 32-10-0113-01 Milk production and utilization. Accessed on July 29, 2020.

<sup>20</sup> BC Farm Industry Review Board. "B.C. Milk Industry 2019". Available here: [https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/organizational-structure/boards-commissions-tribunals/bc-farm-industry-review-board/regulated-marketing/2019\\_milk\\_industry\\_snapshot\\_bcfirb.pdf](https://www2.gov.bc.ca/assets/gov/british-columbians-our-governments/organizational-structure/boards-commissions-tribunals/bc-farm-industry-review-board/regulated-marketing/2019_milk_industry_snapshot_bcfirb.pdf)

<sup>21</sup> BC Milk Marketing Board. "Annual Report for the 2018/2019 Dairy Year". July 31, 2019.

<sup>22</sup> Total revenues of the dairy product manufacturing industry in 2019 were estimated by MNP. For more information how the estimates were derived, please see Appendix A.

<sup>23</sup> Western Dairy Council. "The Dairy Processing Industry". Available here: <https://www.westerndairycouncil.com/processing-industry.html>

### 3. ECONOMIC IMPACTS OF THE INDUSTRY





### 3.1 Economic Impact Analysis Overview

The goal of an economic impact study is to quantify the economic contributions that an industry, project or organization makes to a region. In general, economic impacts are viewed as consisting of well-established, quantitative measures of economic activity. The most commonly used of these measures are output, GDP, employment and government tax revenue:

- **Output** is the total gross value of goods and services produced by a given organization, industry or project, measured by the price paid to the producer. This is the broadest measure of economic activity.

*Example: A beverage manufacturer buys apples from an apple producer for \$100 and adds value to it by producing apple juice which is then sold for \$300. Economic output would total \$400 which is the value of all sales in the chain of activity. The value of the apples is therefore counted twice, once as an intermediate good for the beverage manufacturer, and again in the value of the juice.*

- **Gross Domestic Product (“GDP”)**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. Thus, GDP is equivalent to the unduplicated value of goods and services produced.

*Example: A beverage manufacturer buys apples from an apple producer for \$100 and adds value to it by producing juice which is then sold for \$300. GDP or value added would total only \$300 (as opposed to \$400 economic output). This is because value added subtracts the sale of the purchased apples (intermediate input) of \$100 from the total sales price of \$400, resulting in value added of \$300.*

- **Employment** is the number of additional jobs created. Employment is measured in terms of full-time equivalents (“FTEs”).
- **Government Tax Revenues** are the total amount of tax revenues generated for different levels of government. Please note that because tax revenues can change due to modifications in tax policy, the tax revenue impacts in this report are estimates only and subject to change. They should be viewed as approximate in nature.

Economic impacts may be estimated at the direct, indirect and induced levels.

- **Direct** impacts are changes that occur in “front-end” businesses that would initially receive expenditures and operating revenue as a direct consequence of the operations and activities of a facility.
- **Indirect** impacts arise from changes in activity for suppliers of the “front-end” businesses.
- **Induced** impacts arise from shifts in spending on goods and services as a consequence of changes to the payroll of the directly and indirectly affected businesses.

MNP’s estimates of the economic impacts of the Industry were developed in consultation with Statistics Canada, following an input-output modelling approach. Input-output modeling is a widely-used method, which facilitates comparisons between reported results for different projects, organizations or industries.

For a detailed description of MNP’s economic impact methodology, please refer to **Appendix B**.

## 3.2 Economic Impacts of the Industry in 2019

As shown in Table 1, in 2019, the Industry's output both for dairy production and processing was estimated at \$2.4 billion.<sup>24</sup>

**Table 1: Direct Output Estimates of the Industry in 2019**

	Output (millions)
Dairy Production	\$709
Dairy Processing	\$1,726
<b>Total</b>	<b>\$2,435</b>

Table 2 presents the estimated economic impacts generated by the Industry in 2019. In summary, the Industry was estimated to have generated the following economic impacts in BC:

- Approximately \$3.7 billion in total output, consisting of direct output of \$2.4 billion, indirect output of \$1.0 billion, and induced output of \$0.3 billion.
- Approximately \$1.2 billion in total GDP, consisting of direct output of \$0.6 billion, indirect output of \$0.4 billion and induced output of \$0.2 billion.
- Approximately 12,470 total full-time equivalent (FTEs) positions, consisting of direct employment of 6,560 FTEs, indirect employment of 4,440 FTEs and induced employment of 1,470 FTEs.
- Approximately \$0.3 billion in total taxes, consisting of direct tax revenue of \$0.1 billion, indirect tax revenue of \$0.1 billion and induced tax revenue of \$0.1 billion.

**Table 2: Estimated Economic Impacts of the Industry in 2019**

	Output (millions)	GDP (millions)	Employment (FTEs)	Federal Taxes (millions)	Provincial Taxes (millions)	Municipal Taxes (millions)
Direct	\$2,435	\$575	6,560	\$67	\$43	\$5
Indirect	\$999	\$433	4,440	\$50	\$36	\$10
Induced	\$336	\$217	1,470	\$33	\$38	\$10
<b>Total</b>	<b>\$3,770</b>	<b>\$1,225</b>	<b>12,470</b>	<b>\$150</b>	<b>\$117</b>	<b>\$25</b>

<sup>24</sup> Direct output estimates were derived using output data from the Statistics Canada supply and use tables, farm cash receipts of unprocessed milk, and sales of goods manufactured of dairy products. In 2019, the farm cash receipts of unprocessed milk in BC were estimated at \$683.1 million and sales of goods manufactured of dairy products in BC were estimated at \$1.47 billion.

## 3.2 Economic Impacts by Subindustry

Table 3 presents the estimated economic impacts of dairy production and dairy processing in 2019.

**Table 3: Estimated Economic Impacts of the Industry by Subindustry in 2019**

	Output (millions)	GDP (millions)	Employment (FTEs)	Federal Taxes (millions)	Provincial Taxes (millions)	Municipal Taxes (millions)
<b>Economic Impacts of Dairy Production</b>						
Direct	\$709	\$164	4,230	\$20	\$13	\$2
Indirect	\$620	\$260	2,740	\$30	\$22	\$6
Induced	\$149	\$96	650	\$15	\$16	\$4
<b>Sub-Total</b>	<b>\$1,478</b>	<b>\$520</b>	<b>7,620</b>	<b>\$65</b>	<b>\$51</b>	<b>\$12</b>
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Direct	\$1,726	\$411	2,330	\$46	\$30	\$4
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<b>Total</b>	<b>\$3,770</b>	<b>\$1,225</b>	<b>12,470</b>	<b>\$150</b>	<b>\$117</b>	<b>\$25</b>



### 3.4 Economic Impacts by Region

Table 4 presents the estimated economic impacts of the Industry by region in BC in 2019. As shown in the table, the Fraser Valley accounted for approximately 91 percent of total output, total GDP, total employment and total tax revenues in 2019. The Okanagan accounted for the next largest share of impacts (5 percent), while the remaining regions each accounted for between 0.1 and 2.5 percent of the economic impacts of the Industry in 2019.

**Table 4: Estimated Economic Impacts of the Industry by Region in 2019**

	Total Output (millions)	Total GDP (millions)	Total Employment (FTEs)	Total Taxes (millions)	Average Share of Total Economic Impacts
Fraser Valley	\$3,431	\$1,106	10,725	\$263	91%
Okanagan	\$185	\$65	953	\$16	5%
Vancouver Island	\$92	\$32	472	\$8	2.4%
Kootenays	\$24	\$8	122	\$2	0.6%
Cariboo	\$22	\$8	114	\$2	0.6%
Bulkley Valley	\$13	\$5	69	\$1	0.3%
Peace River	\$3	\$1	15	\$0.3	0.1%
<b>Total</b>	<b>\$3,770</b>	<b>\$1,225</b>	<b>12,470</b>	<b>\$292</b>	<b>100%</b>

### 3.4 Comparison with Other Industries

To provide perspective on the size of the economic impacts of the Industry, it is useful to compare the impacts with those created by other industries. The following are comparisons of the Industry's impacts with the following important industries in BC.

- **New Home Construction.** The total employment supported by the Industry (12,470 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 4,200 new homes in BC.<sup>25</sup>
- **Mining Industry.** The direct employment supported by the Industry (6,560 FTEs) in 2019 was roughly two-thirds of that generated by the BC mining industry (10,196 FTEs) in 2017.<sup>26</sup>
- **High-End Television Series.** The total GDP created by the Industry (\$1.2 billion) was equivalent to the GDP that would be created from approximately 18 high-end television productions in BC.<sup>27</sup>

#### Comparisons with Regional Industries

- **New Home Construction in the Fraser Valley.** The total employment supported by the Industry in Fraser Valley (10,725 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 3,900 new homes in Chilliwack.<sup>28,29</sup>
- **New Home Construction in the Okanagan.** The total employment supported by the Industry in Okanagan (953 FTEs) in 2019 was roughly equivalent to the employment supported by the construction of 340 new homes in Kelowna.<sup>30</sup>
- **Film and New Media in the Okanagan.** The total output supported by the Industry in Okanagan (\$185 million) in 2019 was roughly three-fourths of that generated by the film and new media industry in Kelowna (\$243 million).<sup>31</sup> The film and new media sector in Kelowna is comprised of businesses involved in film and video production, music and sound recording, as well as video game production and publishing.

<sup>25</sup> Canadian Home Builders' Association, Economic Impacts of New Home Construction – British Columbia 2018, Available here: <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/InformationStatistics/Impacts/1%20British%20Columbia%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf>

<sup>26</sup> PWC, 50 Years On - The Mining Industry in British Columbia 2017, Available here: [https://www.pwc.com/ca/en/mining/publications/p386537\\_release5\\_en-v2.pdf](https://www.pwc.com/ca/en/mining/publications/p386537_release5_en-v2.pdf)

<sup>27</sup> Motion Picture Association, Economic Impacts of Once Upon A time, Available here: <https://www.mpa-canada.org/wpcontent/uploads/2016/02/Economic-Impacts-of-Once-Upon-a-Time.pdf>

<sup>28</sup> Canadian Home Builders' Association, Economic Impacts of New Home Construction – Chilliwack 2018, Available here: <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20Chilliwack%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf>

<sup>29</sup> Canadian Home Builders' Association, Economic Impacts of New Home Construction – Abbotsford 2018, Available here: <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20Abbotsford%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf>

<sup>30</sup> Canadian Home Builders' Association, Economic Impacts of New Home Construction – Kelowna 2018, Available here: <https://www.chba.ca/CHBADocs/CHBA/HousingCanada/Information-Statistics/Impacts/1%20Kelowna%20Economic%20Impacts%20of%20New%20Home%20Construction%202018.pdf>

<sup>31</sup> Kelowna Creative Sector Economic Impact Assessment, July 2019, Available here: [https://www.kelowna.ca/sites/files/1/docs/community/Culture/kelowna\\_creative\\_sector\\_economic\\_impact\\_study\\_-\\_web\\_version.pdf](https://www.kelowna.ca/sites/files/1/docs/community/Culture/kelowna_creative_sector_economic_impact_study_-_web_version.pdf)

## 4. BROADER ECONOMIC, SOCIAL, AND ENVIRONMENTAL CONTRIBUTIONS OF THE INDUSTRY



In addition to creating economic impacts, the Industry creates and enables broader economic, social and environmental contributions in BC. Examples of these contributions are outlined in Figure 4.

**Figure 4: Broader Contributions of the Industry**



## 4.1 Case Studies

The following pages contain three case studies that describe some of the broader economic, social, and environmental contributions of the Industry. Information used to prepare the case studies was obtained through secondary research and interviews with Industry representatives featured in the case studies. For a complete list of our primary and secondary data sources, please refer to **Appendix C**.



# CASE STUDY

## Value-Added Processing

The Industry further supports the economy by providing local value-added processing opportunities across the province. While dairy producers provide the raw milk many BC dairy processors depend on to craft products such as cheese, yogurt, and ice cream, several BC dairy farmers have also established their own value-added operations on or near their farms. These operations create additional economic spin-offs and employment opportunities in their communities.

### Cowichan Milk Company

The vanBoven family has owned and operated a small, 73-acre, 50 cow dairy farm in Cowichan Valley, since 1960. After years of neighbours asking if they could purchase milk directly from the vanBovens, the family came up with an idea to generate additional revenue while simultaneously supporting other local farmers - the *Cowichan Milk Company*, a milk pasteurization and bottling operation.

The Cowichan Milk Company started in 2019 as a farm stand selling milk in the vanBoven's driveway. Within a few weeks, the new business was popular enough that they expanded it to include a home delivery service and started selling products through local stores. Today, the Cowichan Milk Company delivers their products directly to about 450 homes within the region and sells to four stores. Their own stand remains popular, attracting about 50 to 80 people every day. In addition to delivering their own milk to homes, they now also deliver eggs, bread, coffee, yogurt, cheese, jam, cookies, nuts, and more. Everything they deliver comes directly from small, local farmers. Adding products from neighbouring farmers allows the vanBovens to support their local economy and ensure money circulates locally, from consumers to small farmers and back.



*Cowichan Milk Company's Products*



*Three Generations of vanBovens – from left, Ben, Herman, and Matthew*



*Cowichan Milk Company*

## Little Qualicum Cheeseworks

Vancouver Island's Gourlay family is another example of value-added production on the farm. Ray Gourlay and his family own a small 90-acre dairy farm in Parksville, BC, with approximately 45-50 cows. In addition to their dairy operation, in 2001 they established their own cheese processing operation, called *Little Qualicum Cheeseworks*. The company processes everything onsite and uses their own milk to craft more than a dozen different cheeses - employing 15-18 local residents in the operation.

Little Qualicum cheese can now be found in grocery and specialty food shops locally and across BC. Despite this broad success, the Gourlay family still runs a small retail outlet on their farm, where they sell their products as well as products from other local businesses and artisans. Visitors to the farm can take free self-guided tours, watch cheesemaking, taste cheese, and learn about milk and dairy product production in the on-site "Mooseum." Throughout the year, the Gourlay family partners with local schools to arrange field trips and summer camps to provide free education on dairy production.

Supporting local youth, every summer the Gourlay family participates in the Canada Summer Job Program, recruiting university students to work in their dairy operation. Students work in diverse areas of the operation – from cheese packaging to working in the retail outlet to driving a tractor on the farm.



*Cheese-making at Little Qualicum Cheeseworks*



*Tours at Gourlay's Family Farm, Morningstar Farm*



*Little Qualicum Cheeseworks' cheeses*



# CASE STUDY

## Community Involvement and Volunteerism

The Industry contributes to the development of communities across the province through active volunteerism and support of local events and initiatives. Dairy farmers help out at local fairs; take leadership roles in community committees; fund scholarships; donate to numerous charities; organize fundraising activities; coach local sports teams; and contribute to activities with local schools, churches, food banks, and community halls.

### The Hanson Family in Creston

The Hanson dairy farm has been family owned and operated since 1970. It all started when Morris Hanson and his brother purchased a dairy farm in Creston, BC. From a young age, Morris and his wife raised their two sons, Jeff and Trevor, to be involved in the dairy operations with the aim to one day pass the farm on to them. Today, Jeff, Trevor, and their wives run the farm alongside their father, Morris, and his wife. Both Jeff and Trevor are raising their children to be the next generation of dairy farmers.

In addition to the responsibilities of raising four children, Jeff Hanson and his wife, Jaqueline, have actively supported their community for many years – in numerous roles. In 2013, the Hansons considered taking on full-time mission work overseas with their church. However, the two ultimately decided they would stay in Creston and fully immerse themselves in supporting their local community.



*The Hanson Family*



*Jeff with the volleyball team (above)  
Jeff coaching his daughter, Mia (below)*

Since then, both Jeff and Jaqueline have been involved in their church youth group, and organized summer camps for children in their community. Both are also involved with their local 4H Club.

Jeff started coaching the Grades 9-10 girls' volleyball team at Prince Charles Secondary School in 2015, when their youngest daughter was on the team. He still coaches the team today, and has started coaching club volleyball as well. He's currently working towards becoming a certified coach through Volleyball Canada.

Jeff is also a member of the Kootenay Milk Producers' Association, responsible for raising awareness of the Industry in his community and participating annually in the May long weekend Blossom Festival Parade.

Finally, the Hansons also donate milk to local school events such as the Terry Fox Run.

## The Rosedale Fire Hall in Chilliwack

Four Chilliwack dairy farmers volunteer with the Rosedale Fire Hall, responding to a variety of emergency calls including active fires, motor vehicle incidents, and health crisis.

Farmer Mark Van Klei is currently the hall's Health and Safety Captain, while Carey Prinse is the hall's Brigade Chief. They estimate the four dairy farmers active at the hall collectively contribute between 300 and 500 hours per year.

The nature of the dairy farmers' work means they have a flexible schedule, allowing them to respond to daytime calls to which other volunteers working regular office hours may not be able to respond.



*Mark Van Klei with a firetruck*



*Rosedale Fire Hall*

When not training or responding to calls, the dairy farmers work with the hall's other volunteers in community initiatives, supporting the annual Food Bank Auction, the annual Make a Difference Auction, and the department's annual pancake breakfast event.



# CASE STUDY

## Environmental Sustainability

Numerous BC dairy producers are implementing environmentally sustainable practices on their farms. They are managing manure through composting and anaerobic digestion, generating renewable energy to reduce greenhouse gas emissions, adding more crop rotations, optimizing the use of feed, reducing tillage practices, and implementing precision agriculture techniques.<sup>32</sup>

### Use of Solar Panels

Rene Miedema's farm in Enderby, has 115 milk cows and approximately 240-acres of land where he grows grass, alfalfa, and corn.

To reduce his farm's environmental footprint and energy costs, Rene recently installed 438 solar panels on the roof of his barn – an ideal large, flat surface. Through these panels, Rene's farm is able to produce approximately 170,000 kilowatt hours of electricity per year - approximately 96 percent of the farm's total power usage. Any excess solar energy generated through his panels in sunny periods can be put back into the electrical grid and credited by BC Hydro for use in the winter months.

Installation of the solar panels required high initial capital investment, but are already starting to pay off - Rene expects to save approximately \$1,500 per month on his hydro bill.



Solar Panels on Rene's Barn  
Source: Roost Solar

Rene procured these solar panels from Roost Solar, a local supplier based in Vernon, BC. Roost Solar has sold solar panels to several agricultural operations across the province.

*"At Roost Solar, we have found that BC farmers have always made up an important part of our solar sales. They tend to be very forward thinking and are looking for ways to make smart, sustainable and long-term decisions and solar panels fit that mold perfectly. With large roofs or areas for ground mount systems, high electricity costs, and some preferential tax treatment for commercial solar customers, it's easy for the economics of solar to pencil out for many BC farmers."*

- **Founder, Roost Solar**

*"The dairy farmers of our area, and their industry, have been an integral part of our community for generations. From being active community members to building a stable resilient, local industry. That has helped our community prosper and develop into what it is today."*

- **Brad Case, Enderby City Councillor**

<sup>32</sup> Ageco Study, Canadian Milk Production LCA Update For Dairy Farmers of Canada, Available here: <https://dairyfarmersofcanada.ca/en/dairy-in-canada/news-releases/ageco-study-results-reveal-improved-environmental-impact-and-efficiency-canadian-milk-production>

## Use of Geothermal Systems

AJ Stobbe's grandparents started their dairy farm in Abbotsford in 1953. AJ's family owned and operated the farm until 2003, when they sold their property and moved their dairy operations to a new property in Mara.

The new property lacked natural gas and they did not want to use propane, so after some research the family decided to build new barns with a geothermal system.

Located in their milk house, the geothermal system draws heat from fresh, raw milk to cool it from 38°C to 2.5°C. The system uses the captured energy to heat the barn, the milking parlour, the offices, and their family house through in-floor heating. The system provides air conditioning as well.

As a result of installing the geothermal system, AJ's farm is successfully operated without the use of natural gas, propane, and/or fossil fuels, except for the use of diesel for farm tractors.



*The Stobbe Family  
Source: BC Dairy*

## Use of Anaerobic Digestors



*Seabreeze Farm's Digester  
Source: CH Four Biogas*

Jerry Keulen and his sons run a 400-cow dairy farm, Seabreeze Farm, in Delta. Five years ago, Seabreeze installed an anaerobic digester on the property. Using bacteria to break down organic material in the absence of oxygen, the digester processes all farm manure as well as 12,000 tons per year of off-farm products (including pre and post-consumer waste, organics, and grease from restaurants) into renewable natural gas that Seabreeze sells to Fortis BC.

Seabreeze has established contracts to have material including organic waste and grease from restaurants delivered to the farm for processing, rather than heading to the landfill.

Keeping organic materials out of landfills is beneficial for the environment as these materials release methane and carbon dioxide into the air when they deteriorate in that environment.

Fortis BC purchases the natural gas the system produces. Jerry says approximately 10 percent of the natural gas generated through the anaerobic digester is from manure, with the other 90 percent from off-farm products that would otherwise end up in a landfill.

To further promote the use of a digester in farming operations, Seabreeze hosts about 150 tours per year, educating the public on the positive environmental impacts use of this technology can have.



# APPENDICES



## Appendix A – Subindustry Definitions

The following are the Statistics Canada definitions of the industry groups that make up the Industry:<sup>33</sup>

- **Dairy cattle and milk production (NAICS 112120)** - This industry group comprises establishments primarily engaged in milking dairy cattle.
- **Dairy product manufacturing (NAICS 3115)** - This industry group comprises establishments primarily engaged in manufacturing dairy products such as cheese, yogurt, butter, and ice-cream.
  - **Dairy product (except frozen) manufacturing (NAICS 31151)** - This industry comprises establishments primarily engaged in manufacturing dairy products, except frozen.
  - **Ice cream and frozen dessert manufacturing (NAICS 31152)** - This industry group comprises establishments primarily engaged in manufacturing ice cream and other frozen desserts.

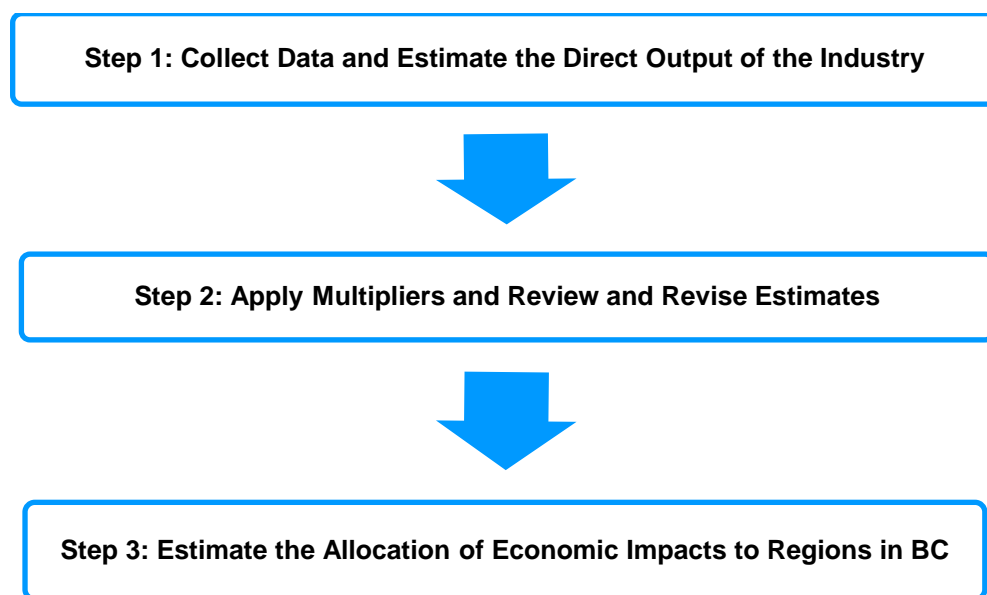
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<sup>33</sup> Statistics Canada. North American Industry Classification System 2012. Available here: <http://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=118464&CVD=118466&CPV=311&CST=01012012&CLV=2&MLV=5>



## Appendix B – Economic Impact Methodology and Assumptions

MNP's estimates of the economic impacts of the Industry have been developed using a Statistics Canada input-output model and related economic multipliers. A detailed, step-by-step overview of MNP's approach is provided below.



### Step 1: Collect Data and Estimated Direct Output of the Industry

To estimate direct output of the Industry, MNP collected data on revenues of dairy producers and dairy processors in 2019 from Statistics Canada (farm cash receipts of unprocessed milk for dairy producers and sales of goods manufactured of dairy products for dairy processors).<sup>34, 35</sup> To ensure inter-farm sales as well as other revenues were captured, MNP used 2016 output data from Statistics Canada supply and use tables and growth in revenues to estimate Industry output in 2019.

### Step 2: Apply Multipliers and Review and Revise Estimates

The next step in MNP's economic impact modelling was to estimate the economic impacts of the BC dairy industry. MNP mapped the production value and processing value-add estimates to economic impact multipliers published by Statistics Canada. The multipliers produced the estimates of direct and indirect economic impacts, including output, GDP, employment and government revenue.

It is important to note that this study estimates economic impacts across the Industry value chain. The interrelated nature of the industry causes a complication in measuring economic impacts as the direct impact of one part of the value chain is implicitly included in the indirect or multiplier effects of an industry to which it is a supplier. For example, milk produced at the farm-level represents an input into value-added products

<sup>34</sup> Statistics Canada. Table 32-10-0045 Farm cash receipts, annual (x 1,000). Accessed on July 29, 2020.

<sup>35</sup> Statistics Canada. Table 16-10-0048-01 Manufacturing sales by industry and province, monthly (x1,000). Accessed on July 29, 2020.

at the processing level. We have therefore carefully traced impacts throughout the value chain to ensure there is no double counting of estimated economic impacts.

### Step 3: Estimate the Allocation of Economic Impacts to Regions in BC

After developing the economic impact estimates, MNP estimated the allocation of the economic impacts among each of the regions in BC.

According to discussions with the Western Dairy Council, the vast majority of dairy processing activity occurs within the Fraser Valley. Similarly, most of their suppliers are located in the Fraser Valley. As a result, 100 percent of economic impacts of dairy processors and their suppliers (except dairy producers) are assumed to occur in the Fraser Valley.

To allocate the economic impacts of dairy producers among regions, MNP used data on the volume of milk produced in BC by region as reported by the BC Milk Marketing Board. The share of total milk produced in 2019 in each region was used to estimate the share of economic impacts of dairy producers in that region. Table 5 shows the share of economic impacts by region.

**Table 5: Share of Economic Impacts of the Industry by Region**

	Dairy Processors	Dairy Producers	Other Suppliers to Dairy Processors
Fraser Valley	100%	77.1%	100%
Okanagan		12.5%	
Vancouver Island		6.2%	
Kootenays		1.6%	
Cariboo		1.5%	
Bulkley Valley		0.9%	
Peace River		0.2%	
Total	100%	100%	100%

Using the shares in Table 5, output, GDP, employment and taxes of the Industry were estimated by region. Note that economic impact multipliers are produced at the provincial level, and do not distinguish between the regional source of the impacts. The regional distribution of economic impacts is therefore an approximation using the best available information.

## Appendix C – Data Sources

This appendix lists the key data sources that MNP consulted throughout our analyses. Supplementary references are included in the footnotes throughout the report.

### PRIMARY RESEARCH

MNP conducted 11 telephone interviews with dairy producers and government representatives in BC. Table 6 summarizes the interviewee profile.

**Table 6: Interviewee Profile**

Interviewee	Title/Organization	Municipality/Regional District
Mr. AJ Stobbe	Dairy Producer	Mara, BC
Mr. Ben Van Boven	Dairy Producer	Cowichan Valley Regional District, BC
Mr. Brad Case	City Councillor	Enderby, BC
Mr. Carey Prinse	Dairy Producer	Chilliwack, BC
Mr. Chris Kloot	City Councillor	Chilliwack, BC
Mr. Jeff Hanson	Dairy Producer	Creston, BC
Mr. Jerry Keulen	Dairy Producer	Delta, BC
Mrs. Lindsay Heer	Dairy Producer	Regional District of Bulkley-Nechako, BC
Mr. Mark Van Klei	Dairy Producer	Chilliwack, BC
Mr. Ray Gourlay	Dairy Producer	Parksville, BC
Mr. Rene Miedema	Dairy Producer	Enderby, BC

### SECONDARY RESEARCH

The secondary sources used in this report are cited throughout the report. A selection of important information sources is provided below:

- BC Dairy Association, <https://bcdairy.ca/>
- BC Milk Marketing Board, <https://bcmilk.com/>
- BC Ministry of Agriculture, <https://www2.gov.bc.ca/gov/content/governments/organizational-structure/ministries-organizations/ministries/agriculture>
- Statistics Canada, <http://www.statcan.gc.ca>
- BC Stats, [www.bcstats.gov.bc.ca](http://www.bcstats.gov.bc.ca)

## Appendix D – About MNP

MNP is one of the leading chartered accountancy and business advisory firm in Canada. Founded in 1958, MNP has grown from a single office in Manitoba to more than 75 offices and 5,000 team members across Canada. In British Columbia, MNP has more than 800 staff located in 18 offices throughout the province. The map below shows our office locations.



### About MNP's Economics and Research Practice

Economic and industry studies are carried out by MNP's Economics and Research practice. Based in Vancouver, the Economics and Research practice consists of a team of professionals that has a successful track record of assisting clients with a wide variety of financial and economic impact studies. Our work has encompassed a wide range of programs, industries, company operations and policy initiatives, and has helped clients with decision-making, communication of economic and financial contributions, documentation of the value of initiatives and activities, and development of public policy.