



# Maple Syrup Markets & Growth Opportunities

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*Prepared For:  
Vermont Agency of Agriculture, Food & Markets*

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**ATLANTIC**  
CORPORATION

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## Executive Summary

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In response to a work request issued by the Vermont Agency of Agriculture Food and Markets, Atlantic Corporation (Atlantic) performed extensive market research on maple syrup and value-added products to determine market conditions, trends in consumer demand, and current distribution channels and to outline the most advantageous strategies for Vermont maple syrup producers to be competitive in a global market. This research report consists of the following tasks as proposed in the application and described in detail in the following sections:

- Conduct an analysis of the global market conditions and context including current and historic rates of global production and consumption, trade flows and anticipated growth, current market conditions, and opportunities for growth in global markets.
- Conduct an analysis of the domestic market conditions broken down by key states including current and historic rates of global production and consumption, trade flows and anticipated growth, current market conditions, and opportunities for growth in global markets.
- Describe key trends and developments in global and domestic markets such as processed maple food products, beverages, innovations in health and wellness, adaption of new technology, case studies in innovation.
- Define the competitive landscape to identify key constraints facing the industry, review growth opportunities by product and sales channel, and recommend engagement strategies. A SWOT analysis was conducted as a part of this objective.

As a result of the research conducted for this report, we are confident that the following recommended marketing strategies and opportunities will provide the Vermont maple syrup industry with a competitive advantage in the global market. Vermont producers could benefit from a focus on entering or expanding into new, niche markets targeting a variety of consumer trends. The key factor for the economic health of the Vermont maple syrup industry is to brand and market its products to sustain high market demand, allowing the key stakeholders to benefit from a market-driven economy rather than in a perilous supply-driven dynamic that typically leads to lower prices.

Niche markets include the health and wellness categories, snacking and baked good segments, beverage categories, and specialty pure maple syrups and upscale packaging. Given the increase in health awareness and the numerous benefits of maple syrup, it can now be marketed as a healthful, alternative sweetener to sugar and corn syrup. Maple flavors have also recently been used to give snacks and other foods a more distinct flavor that adventurous eaters are looking for. In addition, it is now commonly used as a flavor in coffee drinks by the top food and beverage companies and is being utilized to create maple-flavored alcoholic beverages by the craft beer and distillery industries, some of which are local to Vermont. Upscale packaging and infused, specialty maple syrups are new favorites among consumers looking for a more customized experience. Vermont maple producers can seek to partner with complimentary food industries and experiment with flavoring pure syrups to create new products, enter new markets, and gain first mover status both domestically and globally. Lastly, Vermont can find opportunities to increase market share in large global consumer markets such as Australia and growing markets such as South Korea and China.

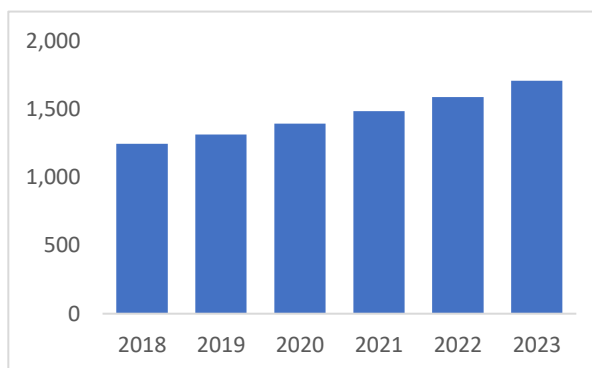
## Market Conditions and Context

### Global Overview

This overview details the conditions of the global maple market, production in both the U.S. and Canada, historical context regarding production between the two countries, and global consumption.

#### Market Conditions

In 2018, the global market value for maple syrup was at an all-time high of \$1.24 billion and is forecasted to grow at a compound annual growth rate (CAGR) of 7% to \$1.7 billion by 2023 (Figure 1). As key players in production, the Americas (including North, South, and Central America) hold the largest share of the market at 55% of and will account for 53% of the five-year growth. Followed by the Americas, the Europe, Middle East, and Africa (EMEA) market holds the second largest share. Asia Pacific holds the smallest share of the markets but is expected to grow at the fastest rate.<sup>1</sup> Global market is determined by all market exchange activity.



**Figure 1.** Global maple market size forecast in millions (Tech Navio)

#### Production

The maple syrup industry is one of the oldest agricultural enterprises in North America and is of great economic and cultural significance to the United States - home to an estimated 9,492 maple farms.<sup>2</sup> The U.S. produced a total of 4.3 million gallons of maple syrup in 2017 with an estimated production value of \$141 million,<sup>3</sup> making it the second largest producer across the world. Due to recent technological and industry advances such as vacuum delivery and tap hole sanitation, production has more than doubled over the past decade, up from 1.9 million gallons in 2007, and there is still room for continued expansion especially in states like Vermont where less than 3% of maple trees are currently tapped.

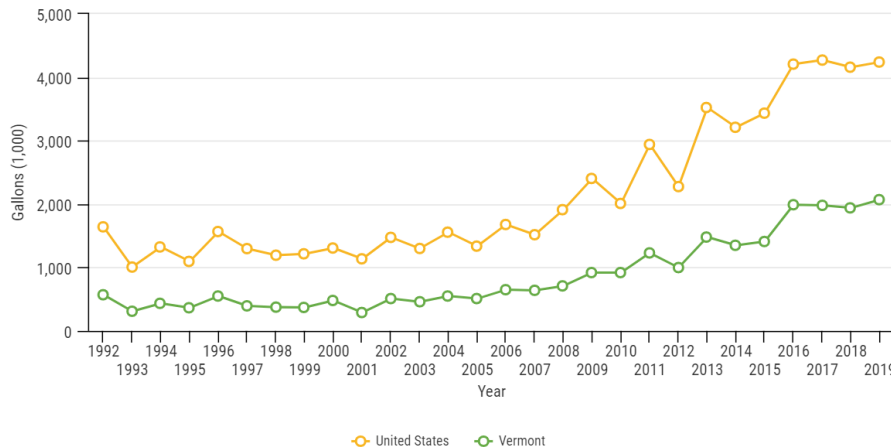
Vermont is the country's top maple syrup and sugar producing state and accounts for almost half of the nation's production. Vermont production has increased in-step with the nation's production trends, having increased from 570,000 gallons in 1992 to 1.94 million gallons in 2018 (Figure 2). Overall growth in production is due to increases in both taps and yield per tap over the past decade. U.S. taps increased from 8.2 million in 2007 to 13.7 million in 2018, while yield increased from 0.19 gallons per tap to 0.3 gallons per tap in that same time period. In Vermont, the number of taps has grown steadily over the past years from 2,770 to 6,000, and production has increased nearly 100% in the past decade. According to a study conducted by the University of Vermont's Center for Rural Studies for the Vermont Maple Sugar Makers Association, most VT producers are small, independent makers with an average of 3,451 taps that

<sup>1</sup> "Global Maple Syrup Market 2019-2023 | Health Benefits of Maple Syrup to Boost Demand | Technavio | Business Wire," accessed July 24, 2019, <https://www.businesswire.com/news/home/20181126005272/en/Global-Maple-Syrup-Market-2019-2023-Health-Benefits>.

<sup>2</sup> "2017 Census of Agriculture," Volume 1, Geographic Area Series, Part 51 (United States Department of Agriculture, National Agricultural Statistics Service, April 2019), [https://www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Volume\\_1,\\_Chapter\\_1\\_US/usv1.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf).

<sup>3</sup> "Maple Syrup Industry Dossier" (Statista, 2018).

produce 1,221 gallons of syrup. The median number of taps is 1,175 with 295 gallons of syrup produced, indicating that the relatively small number of large-scale operations with over 5,000 taps produces the majority of the state’s syrup.<sup>4</sup> There has been a general increase in production of syrup in the past five years, especially from the large-scale producers. In Vermont, maple syrup is the primary maple product accounting for 90% of sales on average.

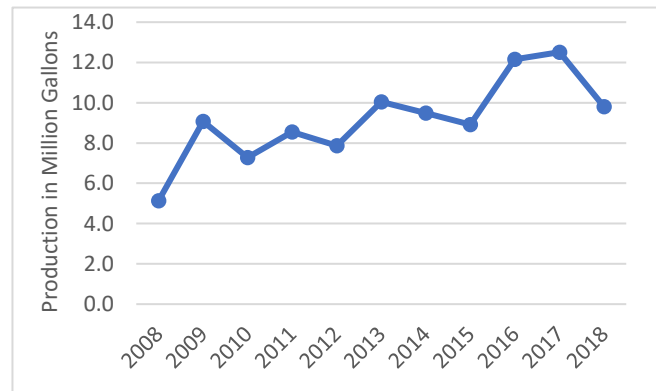


**Figure 2.** Vermont and U.S. Production Levels 1992 to 2019 (USDA)

Other key states in the U.S. include New York, the second largest U.S. maple producer, followed closely by Maine. New York produced a harvest of 806,000 gallons in 2018, up from 760,000 in 2017. Production in this state tends to be more traditional, independent operations than larger commercial operations. Maine produced 539,000

gallons in 2018, down from 709,000 in 2017. Michigan, Minnesota, Ohio, Pennsylvania, Massachusetts, Connecticut, New Hampshire, Wisconsin, and West Virginia are the only other major producing states in the nation.

Canada’s maple syrup production reached 12.5 million gallons in 2017,<sup>5</sup> nearly triple that of the U.S., and provided 71% of the world’s pure maple syrup. However, in 2018, Canada experienced an unusually harsh winter and short spring, which decreased the harvest by 22% to 9.8 million gallons - the lowest level in three years. Production was down in nearly every maple-producing province except Ontario and Nova Scotia. Ontario had an unusually long season in 2018 and, as a result, saw an increase in production of 9.4% to 465,000 gallons, which was the highest the region had seen since 2011. Nova Scotia also increased production from 43,000 gallons in 2017, to 55,000 gallons in 2018.<sup>6</sup>



**Figure 3.** Canadian Production Levels 2008 to 2018 (Statista)

<sup>4</sup> “Study: Vermont Maple Industry Contributes More Than \$300 Million in Sales to State’s Economy,” accessed July 24, 2019, <https://www.uvm.edu/uvmnews/news/study-vermont-maple-industry-contributes-more-300-million-sales-states-economy>.

<sup>5</sup> “Maple Syrup Industry Dossier.”

<sup>6</sup> Statistics Canada Government of Canada, “The Daily — Maple Products, 2018,” December 12, 2018, <https://www150.statcan.gc.ca/n1/daily-quotidien/181212/dq181212f-eng.htm>.

Over 90% of Canada's maple syrup is produced in one region, Quebec, where a planned expansion of five million taps is underway. Despite the recent decline in production (Figure 3), an assessment conducted by Federation of Quebec Syrup Producers (FPAQ) shows that output is projected to double along with this expansion, and production in Ontario and New Brunswick is expected to increase by 5-7%.<sup>7</sup> U.S. maple syrup producers may face intense economic pressure due to the influx of product, and opportunities to grow and enter the market may diminish as Canada becomes an even larger global supplier.

### *Historical Context and a Way Forward*

Because Canada provides the vast majority of the world's maple syrup, it commands the market and sets the global price. In 1958, Quebec maple syrup producers founded a private organization called the Federation of Quebec Syrup Producers (FPAQ), which is responsible for setting prices, marketing the product, and maintaining a strategic reserve for maple syrup. As weather dramatically affects production from season to season, FPAQ established the reserve in the year 2000, which has vastly increased the market globally for syrup. This central marketing and production agency controls the Quebec maple syrup supply and sets prices at values sustainable for their producers.<sup>8</sup>

With the support of over 2,000 Quebec maple producers, FPAQ started setting production quotas for all Quebec producers in 2004 in order to stabilize selling prices, foster investments in the industry, and maintain a steady number of maple businesses in operation. The quotas are unique to each farm based on its production potential. All maple syrup produced is subject to the quota except for direct to consumer sales in containers smaller than five liters or five kilograms in size. Third-party retail sales through grocery stores and restaurants are only permitted if the producer possesses a production quota, but the amount sold does count towards the quota.<sup>9</sup>

Farmers may qualify for a growth component, or a quota increase without the addition of taps, if their average production or the past three years is 105% of their quota. Farmers are not penalized for producing over-quota and can sell it to an authorized buyer or report and delivery it to the federation for payment. If the farmer sells outside the sales agency, they face a penalty of CAD\$0.80 per pound. Operations that produce less than 70% of their production quota over a period of five years will see a reduction in their quota.<sup>10</sup>

Quebec systematically inspects every barrel of maple syrup produced for quality control purposes., which varies between 200,000 and 250,000 barrels per year. The syrup is assessed to determine its percentage of sugar, which should be between 66% and 69%, using the Brix scale. Any deviations from the ideal range results in a penalty. The syrup is also assessed for flavor defects. If natural, microbial, or unidentified defects are found, the consequences include penalties and price adjustments. Barrels could be automatically retained if chemical defects are found or if the syrup is stringy, in which case the syrup would undergo further analysis and if results are confirmed the syrup would be destroyed at the producer's expense.

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<sup>7</sup> "International Maple Syrup Institute Report," May 2018, [http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/fall\\_2018\\_report\\_imsi.pdf](http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/fall_2018_report_imsi.pdf).

<sup>8</sup> "Classification," *Producteurs et Productrices Acéricoles Du Québec* (blog), accessed August 23, 2019, <https://ppaq.ca/en/producer/useful-information/classification/>.

<sup>9</sup> "Quotas," *Producteurs et Productrices Acéricoles Du Québec* (blog), accessed August 23, 2019, <https://ppaq.ca/en/producer/useful-information/quotas/>.

<sup>10</sup> "Frequently Asked Questions - Quotas," *Producteurs et Productrices Acéricoles Du Québec* (blog), accessed August 23, 2019, <https://ppaq.ca/en/faq-2/quotas/>.

While the U.S. is limited by global prices set by Canada, there is no overarching marketing organization and syrup producers with a wealth of natural resources, like those in Vermont, have more freedom to produce as much maple syrup as they wish. However, the global maple syrup price is set in Canadian dollars. If the Canadian dollar weakens, the value of bulk syrup to American producers, particularly those in Vermont, falls accordingly.<sup>11</sup> With the Canadian dollar under downward pressure in recent years, producers typically selling in bulk are now looking towards new markets such as direct to consumer channels for both pure maple syrup and value-added maple products. Some examples include expanding into the gift market with more elaborate packaging, specialty maple syrup products (barrel aged) or infused maple syrup products. Expansion into the ingredient market is another option, with maple syrup blended with condiments such as barbeque sauce, used as toppings on foods such as popcorn, or blended with other products such as cereals, ice creams, and yogurts.

### Global Consumption

Table 1. Top 10 Importers of Maple Syrup<sup>12</sup>

Rank	Country	Import Value (\$USD)	Import Share
1	USA	\$182,408,243	50%
2	Germany	\$27,401,225	7.60%
3	Japan	\$21,207,109	5.90%
4	U.K	\$19,731,020	5.50%
5	Australia	\$15,804,102	4.40%
6	Canada	\$13,109,241	3.60%
7	France	\$12,003,471	3.30%
8	Netherlands	\$ 8,947,364	2.50%
9	Denmark	\$ 5,353,310	1.50%
10	South Korea	\$ 3,693,374	1.00%

Even as the second largest producer, the U.S. imports much more maple syrup than it produces each year, and the rate of imports has grown considerably over the past 40 years from 607,000 in 1975 to 6.1 million in 2018.<sup>13</sup> In 2018, the U.S. accounted for 50% of the world’s import value (\$182 million),<sup>14</sup> 100% of which came from Canada. Followed by the U.S., top importers include Germany, Japan, the U.K., Australia, as well as Canada (which sources all of its imports from the U.S.). As of 2017, South Korea made the top ten importers list replacing Italy (Table 1), and Australia imported an additional CAD\$3

million than it did in the prior year.<sup>15</sup> Australia currently sources 95% of its \$15 million import value of maple syrup from Canada and only 1.8% from the U.S. If Vermont producers could capture just 1% more of the existing Australian market, they would see a six-figure growth in exports. South Korea and Australia should be considered potential opportunities for Vermont to further expand into.

While the top ten importing countries offer great potential as new or expanded market opportunities, some of the smaller importers are also the fastest growing. Algeria demonstrated a 145% five-year annual growth rate (CAGR) of maple syrup imports from 2012 to 2016, having grown from CAD\$3,930 of imports

<sup>11</sup> T. Eric Mcconnell and G. William Graham, “History of Northeastern US Maple Syrup Price Trends,” 2016, <https://doi.org/10.13073/fpj-d-14-00088>.

<sup>12</sup> “The Observatory of Economic Complexity (OEC) - Maple Sugar and Maple Syrup Product Trade, Exporters and Importers,” accessed April 3, 2019, <https://atlas.media.mit.edu/en/profile/hs92/170220/#Exporters>.

<sup>13</sup> “U.S. Maple Syrup Production, Imports, Exports, and Prices, by Calendar Year” (Economics of Food, Farming, Natural Resources and Rural America, n.d.), <https://www.ers.usda.gov/webdocs/DataFiles/53304/table43.xls?v=0>.

<sup>14</sup> “The Observatory of Economic Complexity (OEC) - Maple Sugar and Maple Syrup Product Trade, Exporters and Importers.”

<sup>15</sup> Agriculture and Agri-Food Canada, “Statistical Overview of the Canadian Maple Industry 2017,” sound, April 27, 2018, <http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/horticulture/horticulture-sector-reports/statistical-overview-of-the-canadian-maple-industry-2017/?id=1524607854094#a2.1.4>.

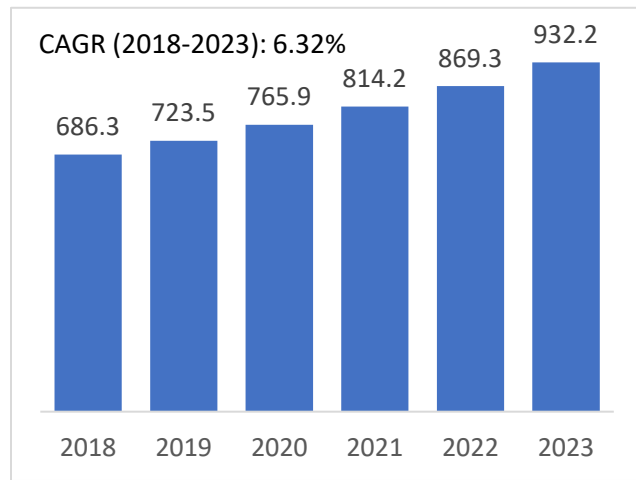


in 2012 to CAD\$140,740 in 2016. Croatia has the next fastest growing import rate at 76% CAGR, increasing from CAD\$107,224 to over CAD\$1 million. Additionally, China imports a considerable amount of the world’s maple syrup, having taken in USD\$1.26 million worth of maple products in 2017.<sup>16</sup> Overall, the world’s maple exports to China have been growing at an exceptional rate of 56% from 2012 to 2016.<sup>17</sup> These countries represent expanding markets that Vermont maple producers can target.

## Domestic Overview

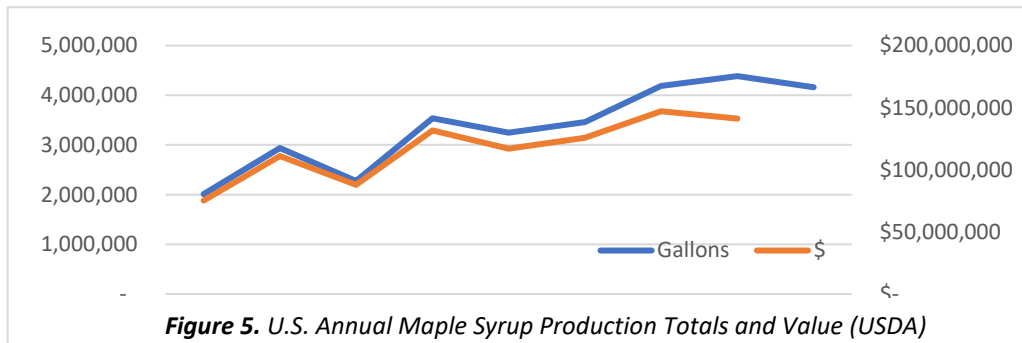
This section focuses exclusively on the United States, providing more detail on the top maple syrup producing states in terms of key trends, production value, yield per tap, pricing, and consumption.

### Key Trends and Developments



**Figure 4.** Americas market forecast in millions (Tech Navio)

In 2018, the market size in the Americas for maple syrup was \$686.3 million with forecasts to reach \$932.2 million by 2023 (Figure 4).<sup>18</sup> The U.S. produced 4.16 million gallons of maple syrup in this same year, down from 3% from 2017. In 2017, the average price per gallon of maple syrup was \$33, down 5.7% from 2016. The U.S. dollar value of production was \$141 million in 2017, down another 4% from 2016.<sup>19</sup> However, from 2010 through 2018 maple syrup production increased considerably overall even with slight fluctuations year to year, and the overall trajectory in production is growth. Production value of maple syrup has increased in step with the growth in production (Figure 5).



**Figure 5.** U.S. Annual Maple Syrup Production Totals and Value (USDA)

<sup>16</sup> “The Observatory of Economic Complexity (OEC) - Maple Sugar and Maple Syrup Product Trade, Exporters and Importers.”

<sup>17</sup> Agriculture and Agri-Food Canada, “Sector Trend Analysis - Maple Products in China,” search interface, January 24, 2018, <http://www.agr.gc.ca/eng/industry-markets-and-trade/international-agri-food-market-intelligence/reports/sector-trend-analysis-maple-products-in-china/?id=1516026678720>.

<sup>18</sup> Global Maple Syrup Market 2019-2023. TechNavio Infiniti Research. November 15, 2018.

<https://www.businesswire.com/news/home/20181126005272/en/Global-Maple-Syrup-Market-2019-2023-Health-Benefits>

<sup>19</sup> US Maple Syrup Production. USDA NASS. June 13, 2018.

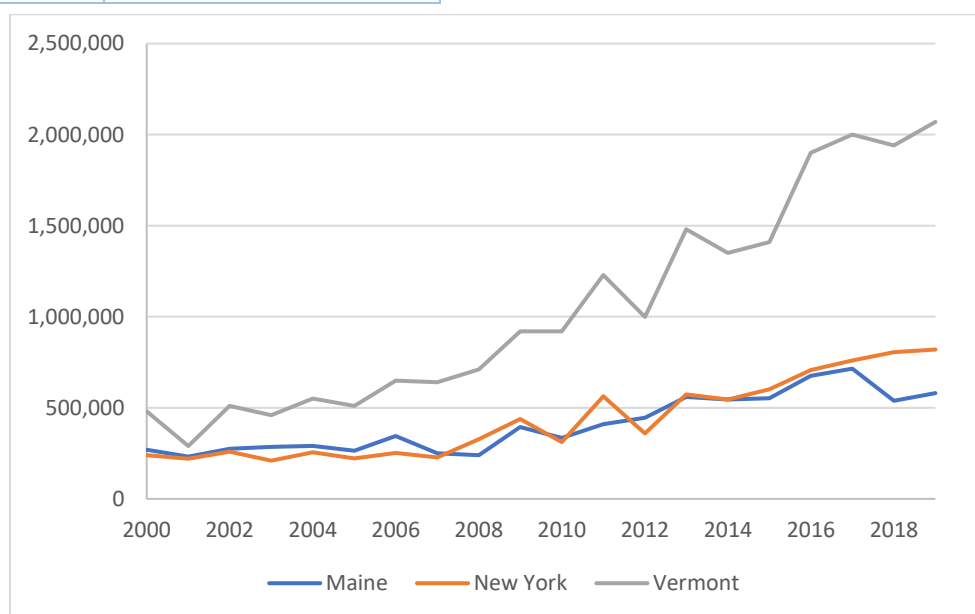
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Table 2. 2018 Production in Gallons and Percent Change from 2017 by U.S. State	
<b>Vermont</b>	1,940,000 (-2%)
<b>New York</b>	806,000 (+6%)
<b>Maine</b>	539,000 (-24%)
<b>Wisconsin</b>	225,000 (+13%)
<b>New Hampshire</b>	163,000 (+6%)
<b>Pennsylvania</b>	142,000 (+2%)
<b>Michigan</b>	125,000 (+14%)
<b>Ohio</b>	90,000 (+13%)
<b>Massachusetts</b>	72,000 (-14%)
<b>Connecticut</b>	18,000 (-10%)
<b>Indiana</b>	18,000 (+50%)
<b>Minnesota</b>	13,000 (-7%)
<b>West Virginia</b>	8,000 (-11%)

Almost half of the total maple syrup production in 2018 took place in Vermont, which produced 1.94 million gallons in 2018, down 2% from 2017. Maine, the third largest producing state with 539,000 gallons in 2018, saw a 24% decrease from 2017.<sup>20</sup> Additional maple syrup producing states with decreases in production from 2017 to 2018 included Massachusetts, Connecticut and Minnesota.

New York is the second largest producer with 806,000 gallons in 2018, an increase of 6% from the prior year (Figure 6). Wisconsin produced 225,000 gallons in 2018, which was a 13% increase from 2017. Additional maple producing states with increases in production from 2017 to 2018 included New Hampshire, Pennsylvania, Michigan, Ohio, and Indiana (Table 2).

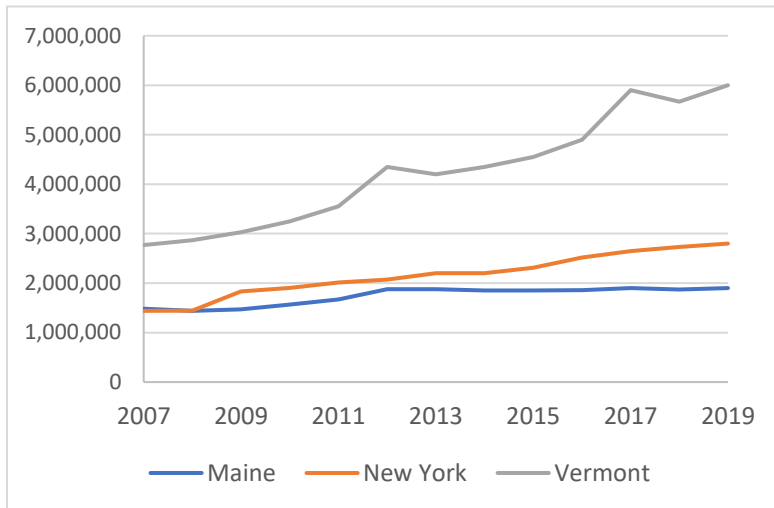


**Figure 6. Maple Syrup Production in Top-Producing States: VT, NY, and ME (USDA NASS)**

<sup>20</sup> US Maple Syrup Production. USDA NASS. June 13, 2018.

[https://www.nass.usda.gov/Statistics\\_by\\_State/New\\_England\\_includes/Publications/Current\\_News\\_Release/2018/Maple%20Syrup%202018.pdf](https://www.nass.usda.gov/Statistics_by_State/New_England_includes/Publications/Current_News_Release/2018/Maple%20Syrup%202018.pdf)

## Season Length and Yield per Tap



**Figure 7.** Number of Taps in Top-Producing States (USDA)

One of the reasons Vermont remains the leading producer of maple syrup in the U.S. is its wealth of natural resources and long-lasting production seasons for freezing and thawing, which have been starting earlier due to colder weather. The average season length for Vermont was 44 days in 2016, 46 days in 2016, and 52 days in 2018.<sup>21</sup> Compared to other top-producing states, Vermont has had the longest seasons in recent years, typically ranging from January 1 through mid-May. Many other states must close their seasons in early May or even April due to warming temperatures. Vermont also

has exponentially more taps than any other state with 6 million in 2019 (Figure 7) as well as the largest average yield per tap. In 2018, it yielded an average of 0.342 gallons of syrup per tap in comparison to New York, which only yielded 0.295 gallons per tap and Maine, which yielded 0.288 gallons per tap on average. Experience, expertise and collaboration between maple producers and the research and development community has likely created a significant competitive advantage for Vermont maple producers.

## Pricing

The average U.S. price per gallon for maple syrup in 2017 was \$33, down \$2 from 2016 according to the USDA, while the total value in production decreased from \$147,208,000 to \$140,777,000. Historically, Vermont’s average price per gallon typically tracks closely with New York and Maine, but it has declined in recent years and has remained lower than both states since 2016. In 2018, the price per gallon of maple syrup in Vermont was \$28 as compared to \$32.40 in New York and \$40.20 in Maine. The value of production in Vermont was \$53,460,000 as compared to \$26,114,000 in New York and \$21,668,000 in Maine.

Vermont’s percent of sales in dollars attributed to retail was 6%, wholesale 2%, and the remaining 92% were bulk sales – a higher percentage than every state except for Maine, Canada’s largest maple syrup trading partner,<sup>22</sup> which had bulk sales of 97%. The percent of bulk sales in all other states ranged from 4% in Indiana to 82% in West Virginia.<sup>23</sup> To gain a significant competitive advantage in the global market,

<sup>21</sup> “United States Maple Syrup Production” (Washington, D.C.: United States Department of Agriculture, National Agricultural Statistics Service, June 13, 2018), [https://www.nass.usda.gov/Statistics\\_by\\_State/New\\_England\\_includes/Publications/Current\\_News\\_Release/2018/Maple%20Syrup%202018.pdf](https://www.nass.usda.gov/Statistics_by_State/New_England_includes/Publications/Current_News_Release/2018/Maple%20Syrup%202018.pdf).

<sup>22</sup> “With Maple Syrup Tariff, Canada-U.S. Trade Dispute Spills Beyond...,” *Reuters*, June 4, 2018, <https://www.reuters.com/article/us-usa-trade-maplesyrup-idUSKCN1J02MS>.

<sup>23</sup> “USDA/NASS Census of Agriculture Chapter 2, Table 6,” accessed May 17, 2019, [https://www.nass.usda.gov/Quick\\_Stats/CDQT/chapter/2/table/6/state/ME](https://www.nass.usda.gov/Quick_Stats/CDQT/chapter/2/table/6/state/ME).

Vermont should focus on sustaining a price advantage over its chief U.S. rivals. They can do so through efficient supply side management including maximizing production, optimizing reduction technologies at low cost, utilizing efficient packaging equipment and through increased demand by continuing to build the Vermont brand of maple syrup so consumers are willing to pay a premium for it, innovating new uses for maple syrup, and developing more value-added products.

### Consumption

In 2010, the number of Americans who regularly consumed maple syrup more than doubled from the previous 5 years from 2.5% of the population to 6.4%. Among those who consumed maple syrup, many ate it about once a week.<sup>24</sup> NPD, a data analytics group, hosts the National Eating Trends database which contains data on the eating habits and attitudes of American consumers through a survey of 5,000 individuals reporting on 14-day's continuous consumption of all meals and snacks. Data are for a 3-year period ending August 2011. When looking at this data regionally, the U.S. Southern and Central regions had the highest level of consumption, defined as the number of times they consumed maple syrup (Table 3). In 2013, maple syrup consumption was at an all-time high. U.S. households used a record of 7.6 ounces of maple syrup per year, up 33% from 2012, and 2.9 ounces per capita representing a sharp increase from the 2.2 ounces of the past 20 years. This consumption was valued at \$2.30 per household, up 32% from \$1.74 in 2012.<sup>25</sup>

**Table 3. Consumption by U.S. Region**

<b>North East</b>	
New England	4.5%
Mid-Atlantic	11.1%
<b>Central</b>	
East North Central	21.8%
West North Central	7.2%
<b>South</b>	
South Atlantic	21.5%
East South Central	11.9%
West South Central	10.1%
<b>West</b>	
Mountain	4.8%
Pacific	7.1%

The sharp increase in consumption is likely due to the sophistication and diversity in consumer tastes. Eric Sorkin, Co-founder of Runamok Maple, a premium and organic producer in Vermont selling infused, barrel-aged and other specialty syrups, agrees, saying, “The country’s food sophistication has changed an awful lot in the last 10 years. People are much more dialed into the quality of the food, the provenance of it, and the country’s becoming more adventurous in what they are eating.” Increased demand for more specialty flavors, sophisticated tastes, and local products is paralleled by changes in diet among health-conscious Americans. Maple is now marketed as an all-natural sweetener with a high mineral count and antioxidant content.

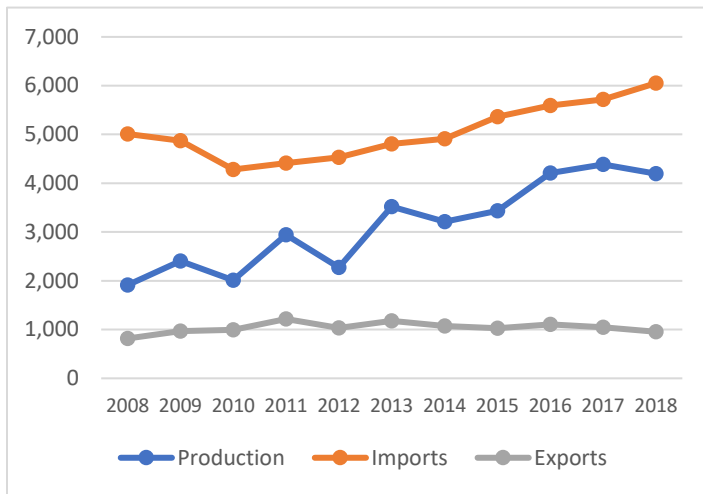
## Competitive Trade Landscape

To describe the competitive landscape of the maple syrup industry, a global trade overview has been provided, as have five-year growth rates of American production, imports and exports. Key market players including top suppliers and food and beverage companies are described. Lastly, a SWOT analysis was conducted to demonstrate the strengths, weaknesses, opportunities, and threats relevant to the U.S. in the competitive landscape.

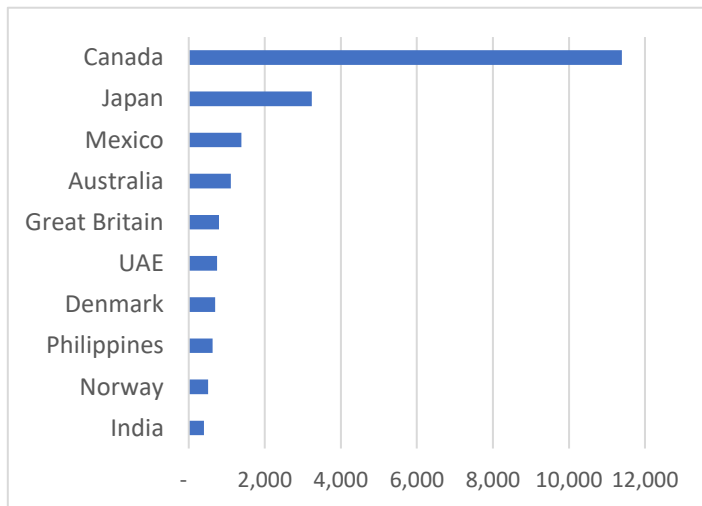
<sup>24</sup> <http://www.agr.gc.ca/resources/prod/Internet-Internet/MISB-DGSIM/ATS-SEA/PDF/6148-eng.pdf> (2012)

<sup>25</sup> <https://www.specialtyfood.com/news/article/us-consumers-poured-maple-syrup-2013/>

## Trade Overview



**Figure 8.** U.S. Production, Imports, Exports in Thousands of Gallons (ERS, USDA)



**Figure 9.** U.S. Export Destinations in Thousands (Flexreport)

U.S. maple syrup exports are much lower in volume and steadier than imports, averaging at 1 million gallons per year without much fluctuation (Figure 8). In 2018, value of U.S. maple syrup exports reached \$25.4 million, accounting for 6.3% of the world’s total maple syrup export value. The majority of the nation’s exports go to Canada (\$11.4 million), followed by Japan (3.2 million), Mexico (\$1.4 million), Australia (\$1.1 million) and Great Britain (\$795,959)<sup>26</sup> (Figure 9).

Canada is the world’s largest exporter of maple syrup. In 2017, Canadian exports were valued at \$304 million, accounting for 84% of the total maple syrup exports. Aside from the U.S., other top exporters include Germany, which exports \$8.72 million worth of maple syrup or maple sugar products, as well as the Netherlands and Denmark, whose export values total \$5.9 and \$5.6 million respectively. The majority (60%) of Canadian exports go to the U.S., followed by Germany (8%), Japan (6.8%), the U.K. (5.0%), and Australia (4.9%).<sup>27</sup>

Almost all of Canada’s exports are sourced from its top producing region of Quebec, which provides 96.8% of the export value. New Brunswick provides 2.8% of the share, and all other regions combined provide 0.4% of exports (Table 4).

<sup>26</sup> “Trade Statistics, Tariff Rates for Maple Sugar And Maple Syrup,” Flexport Data, accessed July 24, 2019, <https://www.flexport.com/data/hs-code/170220-maple-sugar-and-maple-syrup>.

<sup>27</sup> “The Observatory of Economic Complexity (OEC) - Maple Sugar and Maple Syrup Product Trade, Exporters and Importers.”

Table 4. Canadian Export Sources in Thousands CAD (Source: Agriculture and Agri-Food Canada)

	2013	2014	2015	2016	2017
<b>Newfoundland and Labrador</b>	0	0	0	1	0
<b>Prince Edward Island</b>	101	219	0	0	23
<b>Nova Scotia</b>	341	239	515	558	520
<b>New Brunswick</b>	9,471	12,174	17,648	17,168	10,808
<b>Quebec</b>	266,173	295,014	338,976	362,324	369,774
<b>Ontario</b>	1,344	1,909	2,155	773	171
<b>Manitoba</b>	0	0	0	0	0
<b>Saskatchewan</b>	0	0	47	0	0
<b>Alberta</b>	0	1	1	194	118
<b>British Columbia</b>	512	239	200	391	702
<b>CANADA TOTAL</b>	<b>277,942</b>	<b>309,794</b>	<b>359,542</b>	<b>381,408</b>	<b>382,115</b>

Six countries showed positive net exports of maple syrup products during 2017, defined as the value of a country's total exports minus the value of its imports. As a producer, Canada has the highest surplus in the international trade of maple syrup products at \$282.3 million (Table 5). In turn, this positive cashflow confirms Canada's strong competitive advantage for this specific product category. Other countries, including Denmark, Egypt, Indonesia, Croatia, and Burkina Faso do not produce maple syrup but resell their imports to other countries creating a surplus in export value. Meanwhile, several countries had negative net exports of maple syrup products in 2017. The U.S. incurred the highest deficit in the international trade of maple syrup products at \$157 million, demonstrating its inability to produce enough maple syrup to keep up with powerful consumer demand of Americans. Other countries with high deficits, such as Japan, the U.K. Australia, and Germany, do not produce maple syrup and likely consume most of what is imported as opposed to reselling its imports.

Table 5. Net Exports by Country (Source: Agriculture and Agri-Food Canada)

<i>Countries with Positive Net Exports</i>		<i>Countries with Negative Net Exports</i>	
<i>Country</i>	<i>Surplus</i>	<i>Country</i>	<i>Deficit</i>
Canada	\$282.3 million	United States	\$157 million
Denmark	\$1.8 million	Japan	\$22.7 million
Egypt	\$1.1 million	United Kingdom	\$17.1 million
Indonesia	\$287,000	Australia	\$15.4 million
Croatia	\$118,000	Germany	\$14.4 million
Burkina Faso	\$5,000	France	\$9.7 million
		South Korea	\$3.8 million
		Belgium	\$3.7 million
		Switzerland	\$3.7 million
		Italy	\$3.4 million

## Key Market Players

The key players in the market as identified by Market Research Future in their Global Maple Syrup Market Research Report include a variety of companies with three broad categories: large-scale manufacturers producing popular corn-syrup based pancake syrups with maple additive; flavored beverage syrup companies offering maple-flavored syrups, extracts, and other products; and top supplying multi-generational family farms working with local sugar makers to procure maple for their supply.<sup>28</sup>

The top large-scale manufacturers and food and beverage companies in the maple syrup market include American Garden, B&G Foods, the Kraft Heinz Company, PepsiCo Pinnacle Foods, and the J.M. Smucker Company. American Garden is a U.S. based company that produces several types of condiments including pancake syrup made with 2% pure maple syrup. B&G Foods is a holding company that owns the brand Maple Grove Farms, whose products include 100% pure maple syrup, maple candy, and maple-flavored dressings such as maple balsamic vinaigrette, maple citrus ginger dressing, and maple apple cider dressing. The Kraft Heinz Company owns Cottees flavored maple syrup, Kraft pancake syrup, and single serve pancake syrups including Log Cabin brands. PepsiCo owns Aunt Jemima pancake syrups as well as Quaker Oats, which uses corn syrup based maple flavorings in several of its products including oatmeal, cereals, and granola bars. Conagra owns Mrs. Butterworths as well as Log Cabin.

Flavored syrup companies include DaVinci Gourmet, LLC, an Irish brand of flavored syrups for coffee and teas that offers maple-flavored sweetening syrup as well as Monin, Inc, a French brand offering a maple spice and maple pancake flavored syrups. Amoretti, an American brand of flavored syrups, offers maple flavored syrup as well as maple extract, maple compound, maple-bacon icing, and maple-bacon extract.

Pure maple syrup producers include Butternut Mountain Farm, a Vermont company that works with over 350 sugar makers to produce, package, and brand pure maple syrup. They sell syrup and sugar retail, wholesale, and bulk and have additional retail offerings including “flights” of maple syrup in specialty packaging, premium syrups infused with cinnamon, vanilla, ginger and other flavors, and other specialties such as maple butter, maple mustard, maple BBQ sauce, and maple pepper. The majority of their business is wholesale, as they brand their syrups and products for large volume customers like Whole Foods and Walmart.

Ferguson Farm is an independent farm in Vermont offering 100% pure maple syrup at all grades as well as maple sugar and maple candy. Cedarville Maple Syrup is based in New York and produces maple syrup, maple cream, maple sugar, and other specialties such as maple sugar coated nuts and maple candies. Lastly, Coombs Family Farms sources maple from 3,000 small producers to produce and package pure maple syrup, maple sugar and maple candy. They sell both retail and wholesale.

The top market players in all categories have made efforts to shift the perception of maple syrup from a pure product to an ingredient. These companies are combining maple syrup with salad dressing, oatmeal, bacon, beans, sausage, BBQ sauce, coffee/cocktail syrup and more. These value-added products speak to the versatility of maple syrup as a sweetener and flavoring as well as creates a larger demand for the raw product.

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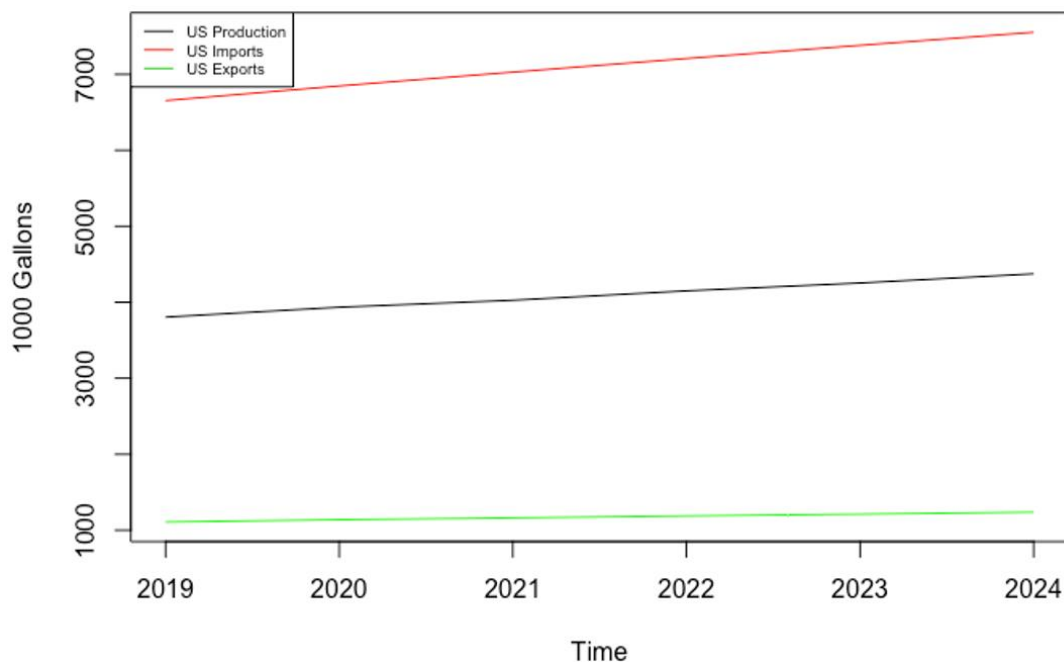
<sup>28</sup> “Maple Syrup Market Research Report- Forecast to 2023 | MRFR,” accessed August 23, 2019, <https://www.marketresearchfuture.com/reports/maple-syrup-market-4944>.

## Five Year Growth Rates

Over the past several years, U.S. production and imports of maple syrup grew consistently while exports remained constant. Atlantic conducted a regression analysis to forecast growth rates in production, imports, and exports over a five-year period from 2019-2024, and concluded that the industry can continue to expect these trends.

Using available data from 1975-2018, we created three time series of imports, exports, and production and employed the Augmented Dickey-Fuller (ADF) test to investigate whether the series allow for the possibility of a deterministic time trend. Based on the ADF test, we found that each of the three time series were not mean-reverting, and a cointegration analysis was used to determine whether the series are moving together or independently. We found an inverse relationship between production and imports, suggesting that years with higher imports tend to be years with lower production of U.S. maple syrup. We also found that there was no integration between the three series, meaning that the relationships between production, imports, and exports changes over time as opposed to remaining stationary. Upon finding no integration, a vector autoregression was used to generate forecasts over the next five years. A full description of the methodology can be found in Appendix A.

As can be seen in the figure below, our forecasts suggest that U.S. imports and total production of maple syrup will rise consistently through 2024, with steeper growth in production. U.S. exports, in contrast, are forecasted to remain relatively constant throughout this period, suggesting that the import-export ratio of US maple syrup will continue to widen as imports grow and exports remain stable.



**Figure 10.** Five-year growth rate of U.S. Production, Imports, and Exports



## Innovative Uses and Applications

Both the pure syrup and the value-added segments of the maple industry have been evolving to meet consumer preferences. For maple syrup, Vermont piloted a new grading system that is now adapted by the USDA (Table 6), and producers are using more upscale, specialty packaging rather than the traditional plastic jugs to appeal to purchasers. There is also a wider variety of infused syrups with flavors such as hibiscus, vanilla, cinnamon, and elderberry, and others are barrel-aged in rum or bourbon barrels to create more distinct tastes.

Table 6. Original and Revamped Grades for Maple Syrup

Original Grade	Revamped Grade
Grade A Light Amber	Grade A Golden Color and Delicate Taste
Grade A Medium Amber	Grade A Amber and Rich Taste
Grade A Dark Amber	Grade A Dark Color and Robust Taste
Grade B Extra Dark	
Commercial	Processing Grade

Many in the maple industry see the future in value-added products made with real maple syrup such as carbonated beverages, condiments such as BBQ sauces, mustards, and dressings as well as yogurts, ice creams, cereals, oatmeals, cookies, and more. Chas Smith, co-founder of Sap!, a carbonated maple beverage, wants to use value-added products to turn people on to maple. He says, “The core maple industry, in terms of how it’s made and where it’s coming from it’s still relatively the same. It’s really in the value-added sector where the change is really happening. A lot of that stems from how can we as a company as a community, as a state, help grow the maple market by integrating maple into people’s lives in new and different ways.” Matt Gordon, former executive director of the Vermont Maple Sugar Maker’s Association agrees with Smith, saying “Any product that gets the consumer to understand what maple is and think about it in terms of a use other than Sunday morning pancakes is going to be good for the industry.”<sup>29</sup> Specific trends in both the food and beverage categories are as follows.

### Foods

*Packaging innovations.* Innovations in packaging is a major trend in the maple syrup industry, as it plays a major role both in terms of helping retain the quality (flavor, taste, color, texture) as well as in appearance, sales and marketing to consumers. Because maple syrup is typically stored for at least three months, vendors place a large focus improving shelf-life by using quality packaging with a focus on wet-strength and durability.<sup>30</sup> Emphasis is also being placed on the design of the bottles and bottle shapes for both aesthetics and shelf-life purposes.<sup>31</sup> More effective caps are being used to reduce waste and contain mess such as the “LiquiFlapper Closure” that provides a more even and controlled directional flow of liquids. Another example is the “Maple Stream” product launched by Coombs Family Farm in January 2019, which is a sprayable packaging that helps children use less of the costly pure maple syrup by making it easier to

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<sup>29</sup> Mike Dunphy, “Why the Vermont Maple Industry Is Booming,” *UVM Food Feed* (blog), March 15, 2018, <https://learn.uvm.edu/foodsystemsblog/2018/03/15/why-vermont-maple-industry-is-booming/>.

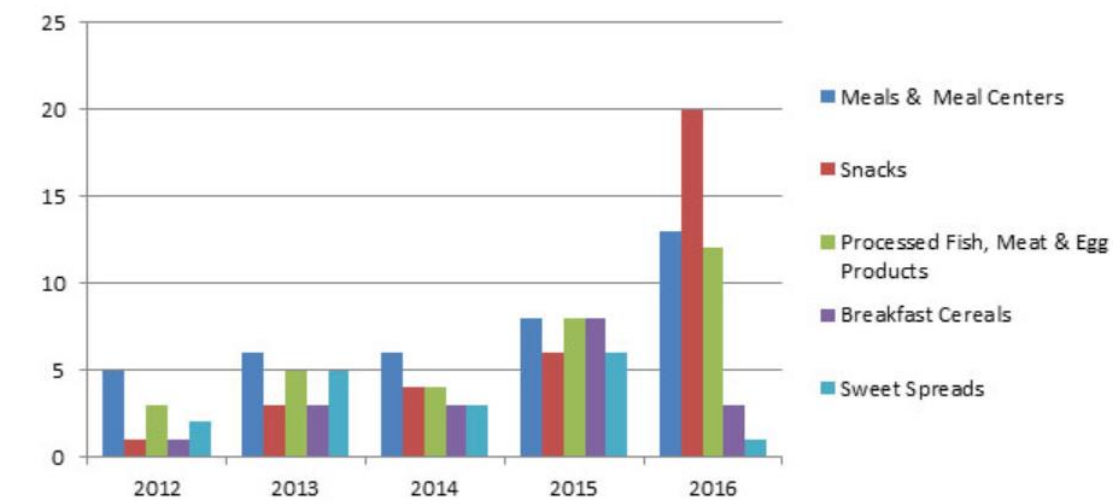
<sup>30</sup> Global Maple Syrup Market 2019-2023. TechNavio Infiniti Research. November 15, 2018. <https://www.businesswire.com/news/home/20181126005272/en/Global-Maple-Syrup-Market-2019-2023-Health-Benefits>

<sup>31</sup> Global Maple Syrup Market Research. Forecasts 2023. Market Research Future. May 2019. <https://www.marketresearchfuture.com/reports/maple-syrup-market-4944>

control application, allowing parents to avoid having to purchase cheap, artificial pancake syrup.<sup>32</sup> Vermont producers can utilize high quality, effective packaging encouraging ease of use or can design attractive new bottle shapes to appeal to more consumers.

*Use as ingredient for flavor-seeking consumers.* Maple has an advantage given that adventurous consumers want to try new flavors and maple is considered to have a distinct flavor that works on its own or mixed with others.<sup>33</sup> For example, many independent producers and large-scale food companies use maple syrup and maple sugar to flavor savory dressings, sauces, mustards, and spices among other condiments. The bakery and confectionary categories dominate the maple syrup market due to demand for granulated maple sugar for toppings on cake, oatmeal, and other baked goods. Increased demand for baked goods using maple syrup as a sweetener such as pancakes, waffles, bread rolls, and coffee cakes is a market driver for the global maple syrup industry.<sup>34</sup> Vermont maple syrup producers should consider marketing their syrups to food and beverage companies looking to create new maple-flavored products, thereby driving up demand for the commodity.

Multiple products containing maple syrup are being introduced globally. For example, consumers in the United Kingdom are watching their consumption of sugar and salt like those in many countries but are still looking for the high-flavor payoff and taste-centered experiences that maple can deliver. From 2012 to 2016, 183 products containing maple were launched in the U.K., including meals, snacks, processed products, breakfast cereals, and sweet spreads. Twenty of the newly launched products are pasties, a popular pastry in the region (Figure 11).<sup>35</sup>



**Figure 11.** New Product Launches in the United Kingdom 2012-2016

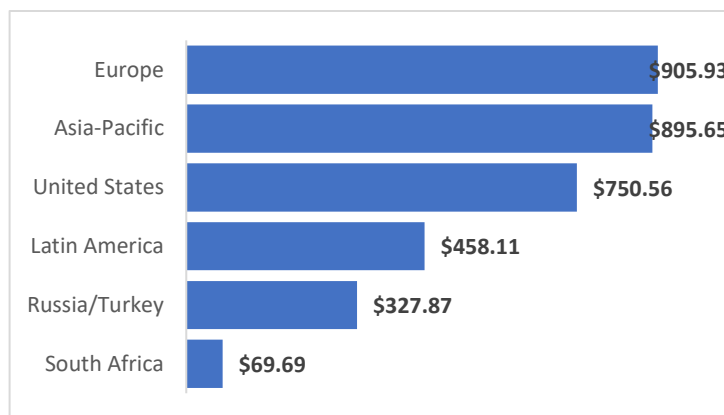
<sup>32</sup> Sprayable Maple Syrup? Vermont Company Says It's the Future. Burlington Free Press. January 23, 2019. <https://www.burlingtonfreepress.com/story/life/2019/01/23/coombs-family-farms-vermont-maple-syrup-company-unveils-spray-can/2603449002/>

<sup>33</sup> <http://www.agr.gc.ca/eng/industry-markets-and-trade/international-agri-food-market-intelligence/reports/sector-trend-analysis-maple-products-in-the-united-kingdom/?id=1516721065469#d>

<sup>34</sup> "Maple Syrup Market - Global Industry Analysis & Forecast | 2025," accessed July 22, 2019, <https://www.transparencymarketresearch.com/maple-syrup-market.html>.

<sup>35</sup> Canada, "Sector Trend Analysis - Maple Products in China."

*Worldwide snacking trend.* Health-conscious snacking and smaller, more frequent, meals are widespread consumer trends with nine in ten consumers now snacking multiple times throughout the day to satisfy their on-the-go lifestyles.<sup>36</sup> Snacking has grown considerably across all global markets (Figure 12)<sup>37</sup>, with the greatest percentage of value growth in countries like Argentina (25.8%), Slovakia (20.0%), Vietnam (19.1%), Latvia (15.2%), and Lithuania (13.0%)



**Figure 12.** Snacking Value Growth in \$M USD (Nielsen)

Given that maple syrup is all natural and nutrient rich with calcium, potassium, and zinc, it has the potential to play a large part in the healthy snack trend as an alternative sweetener to sugar. It is often added to healthy snacks like nuts, cereals, or energy bars and paired with health awareness, maple can be the ideal fresh sugar substitute. In the U.K., the following snacks have been launched in recent years:

- Mega Maple and Pecan Clusters – Breakfast cereal from Morrisons
- Maple, Toasted Rice and Pink Salt Organic Dark Chocolate – Chocolate from Doisy & Dam
- Maple Caramelized Nuts – Snacks/nuts from Waitrose Christmas
- Maple Peanuts with Caramel Fudge & Vine Fruits – Snacks/nuts from Clancy’s

In China, there were several new maple-related product launches between 2006 and 2016 made with maple ingredients such as maple sugar and syrup.<sup>38</sup> These products fell in the snacks, bakery and chocolate confectionary categories, examples include the following:

- Maple Syrup Flavored Chestnuts by Tangshan Zhenzhu
- Maple Flavored Cashews by Youi Group
- Holland-style Cinnamon Original Maple Syrup Waffle by Mage’s Foods
- Maple Syrup Potato Wedges made with real maple syrup by Synear Food Holding
- Maple Syrup Pie by Taiwan Yougood Food

Japan saw 115 maple syrup-related product launches in across nine different categories from 2003 to 2013, and most growth occurred between 2010 and 2013.<sup>39</sup> Bakery products dominated with 50 new product launches, followed by dessert and ice cream categories with 27 new product launches, and 12

<sup>36</sup> “Cheese Snack Innovations on the Rise,” accessed July 8, 2019, <https://www.foodbusinessnews.net/articles/7118-slideshow-cheese-snack-innovations-on-the-rise?v=preview>.

<sup>37</sup> “Booming Snack Sales Highlight a Growth Opportunity in Emerging Markets,” accessed August 26, 2019, <https://www.nielsen.com/eu/en/insights/article/2018/booming-snack-sales-highlight-a-growth-opportunity-in-emerging-markets>.

<sup>38</sup> Canada, “Sector Trend Analysis - Maple Products in China.”

<sup>39</sup> Agriculture and Agri-Food Canada, “Analysis of New Maple Products and Ingredients in Japan,” report, November 3, 2014, <http://agr.gc.ca/eng/industry-markets-and-trade/international-agri-food-market-intelligence/asia/market-intelligence/analysis-of-new-maple-products-and-ingredients-in-japan/?id=1415039881942>.

new products in the snacking category. Other categories with new maple-related products included the breakfast cereal, bread, dairy, and sauces/seasonings categories. Examples of new products include:

- Egg and Butter Juicy French Toast by Minori Bakery
- Maple Syrup and Nuts Cream Filled Brown Rice Bran Sandwich Bar by Asahi
- Panna Cotta and Mille Crepes Parfait with Maple Flavor by Happyrich Sweets
- Omelette Cake with Whipped Cream and Maple Flavor by Seven & 1 Holdings
- Mild Milk and Maple Pie Puff Bite by Lotte
- Maple Ginger Lozenges by Kanro
- Sweet Maple Flavored Chestnuts by Kracie

Value-added production in a category like snack foods can be a boon to a commodity like maple syrup, allowing producers to hold onto larger and more profitable portions of the value chain like production and marketing as opposed to producing in bulk.

## Beverages

*Maple Liqueur.* Maple liqueur refers to a variety of alcoholic beverages made from maple syrup. More of a traditional Canadian beverage, the components are typically Canadian Whiskey and Canadian maple syrup. Well-known whiskey brands such as Crown Royal have released maple finished whiskeys as recently as 2013. Vermont distilleries such as Elm Brook Farm make spirits derived from 100% pure maple syrup including two barrel aged spirits reminiscent of cognac or whiskey as well as a sipping vodka. Mad Rivers Distillers makes a maple cask rum. In addition, cream liqueurs are becoming popular, with Boyden Valley Spirits releasing Vermont Ice Maple Crème to pair with coffee, French toast, bourbon or whiskey, and maple mudslides.

Maple syrup sap has also traditionally been used at the end of the season to create beer, especially in Vermont. In 2011, master brewer Sean Lawson of Lawson’s Finest Liquids brewed 375 hand-numbered and signed bottles of sap beer, which won a silver ribbon at the World Beer Cup.<sup>40</sup> He still sells a rich maple amber ale, a maple imperial stout, and a maple chocolate cherry stout as a part of his product line. Other craft brewers and distillers are tapping into the maple syrup industry such as Vermont Spirits, which uses maple in drinks such as gin and bourbon. One of their best-selling products is “No. 14 Bourbon” where they “add a touch of maple” at the end of the production process.<sup>41</sup> Because many of the craft breweries and distilleries are located in Vermont, maple syrup producers should seek opportunities to collaborate and create new alcoholic products, becoming first movers in the category. However, brewers in other states are participating in the maple trend as well. NoDa Brewing in North Carolina had a Hot Cakes double IPA made with real maple syrup and Hardywood Brewing in Virginia released a limited Christmas Pancakes stout.

*Maple Water.* The clear liquid that comes from the trees only for a short time in early spring, is similar to coconut water in that it delivers electrolytes and vitamins and people can benefit from the phytochemicals and hydrating effects. In optimum conditions, a mature maple tree will produce about 200 gallons of

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<sup>40</sup> Vermont Beer Makers Bring Back Old-Time Maple Sap Brews. NPR.org. May 15, 2012.

<https://www.npr.org/sections/thesalt/2012/05/15/152694105/vermont-beer-makers-bring-back-old-time-maple-sap-brews>

<sup>41</sup> <https://www.forbes.com/sites/nicolerasul/2019/02/28/on-the-eve-of-maple-syrup-season-a-snapshot-of-the-growing-american-market/#784fb01f3b0e>

maple water per season. Maple water, while relatively new to the U.S. market, has been considered a functional/medicinal beverage in Korea and Russia and other eastern countries, for centuries. It contains less sugar than the full maple syrup product although it still maintains the nutrients of the syrup.<sup>42</sup>

According to Market Watch, the worldwide market for maple water is forecast to grow at a CAGR of about 52% over the next five years to reach \$1.28 billion in 2024, up from \$100 million in 2019. There are about ten brands of maple water available in the market, including top brands such as SEVA, Drink Simple and Oviva.<sup>43</sup> While lesser known than maple syrup, maple water might provide an opportunity for Vermont farmers to market as a health food/functional beverage as an export to Europe.

## Health and Wellness

Health concerns are rising as the U.S. and Canadian populations age. By 2031, 25% of the population will be 65 years and older.<sup>44</sup> The maple syrup market is benefiting from growing health awareness and wellness trends and has an opportunity to become the next preferred substitute for sugar.<sup>45</sup> Maple syrup contains several antioxidants reported to have anti-cancer, anti-bacterial, anti-diabetic, and anti-inflammatory compounds.<sup>46</sup> It also contains a high zinc content level, prompting consumers to see it as a 'fitness-elevating' food. Benefits of zinc include skin protection, improved digestion and healthy hearts.<sup>47</sup> In addition, maple syrup contains manganese, which aids in energy production, calcium, great for bone strengthening, riboflavin, which aids in metabolic processing, magnesium, associated with lower risks of heart disease, and potassium, which helps to maintain a healthy blood pressure. Maple syrup also contains several polyphenols which support a strong immune system.

Dr. Navindra Seeram, professor in the Department of Biomedical and Pharmaceutical at the University of Rhode Island has a long history of investigating the benefits of medicinal plants and medicinal plant foods. He has been researching the chemical make-up of maple syrup and discovered that the chemically diverse polyphenols, vitamins, minerals, amino acids and organic amino acids that are found in maple syrup, can prevent or delay inflammatory disease such as cardiovascular disease, metabolic syndrome, and diseases of the brain.<sup>48</sup> He strongly believes that we are just scratching the surface of identifying and supporting the potential health benefits of maple syrup in inflammation, sports medicine, nutrigenomics, and other

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<sup>42</sup> What is Maple Water? Mother Nature Network. December 22, 2014. <https://www.mnn.com/food/healthy-eating/stories/what-is-maple-water>

<sup>43</sup> At 52% CAGR, Maple Water Market Size is Expected to Exhibit \$1280 million by 2024. Press release. April 17, 2019. <https://www.marketwatch.com/press-release/at-520-cagr-maple-water-market-size-is-expected-to-exhibit-1280-million-usd-by-2024-2019-04-17>

<sup>44</sup> "Towards a Collaborative Maple Syrup Marketing Effort for the U.S.A. and Canada" (International Maple Syrup Institute, n.d.), [http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/towards\\_a\\_collaborative\\_maple\\_syrup\\_marketing\\_effort.pdf](http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/towards_a_collaborative_maple_syrup_marketing_effort.pdf).

<sup>45</sup> Sector Trend Analysis: Maple Products in the UK. Agriculture and Agri-Food Canada. January 2018. <http://www.agr.gc.ca/eng/industry-markets-and-trade/international-agri-food-market-intelligence/reports/sector-trend-analysis-maple-products-in-the-united-kingdom/?id=1516721065469>

<sup>46</sup> "Maple Syrup Health Benefits and Nutrition," Acadian Maple Products, accessed July 22, 2019, <https://acadianmaple.com/pages/maple-syrup-health-benefits-and-nutrition>.

<sup>47</sup> [http://www.abnewswire.com/pressreleases/maple-syrup-market-share-sales-global-production-consumption-top-key-players-review-and-rapid-growth-by-fast-forward-research\\_275668.html](http://www.abnewswire.com/pressreleases/maple-syrup-market-share-sales-global-production-consumption-top-key-players-review-and-rapid-growth-by-fast-forward-research_275668.html)

<sup>48</sup> Quebec Maple Syrup Producers, "Could Maple-Based Drinks Compete with Commercial Sports Drinks?," accessed July 24, 2019, <https://www.prnewswire.com/news-releases/could-maple-based-drinks-compete-with-commercial-sports-drinks-300822087.html>.

areas of medicine. Dr. Jonathan Trumbly at the University of Montreal conducted a clinical trial on 75 participants to test whether maple drinks (made of maple water or syrup) can be used as a source of energy during two hours of exercise. His study found that ingesting maple sap products during prolonged workouts can improve performance and are comparable to commercial sports drinks. The maple industry has made great strides in studying the health benefits and nutritional aspects of maple syrup, and has made several investments in resources to spread awareness. However, more work is needed to reach conclusive research that can better allow the industry to tout the scientifically-backed benefits of maple syrup, persuade more consumers, and increase demand.

Maple syrup has great openings in the area of functional foods - foods that have some health benefit associated with them, including some known as nutraceuticals. The health benefits of maple syrup have been well documented<sup>49,50,51</sup> and with the growth worldwide in segments such as functional foods and beverage, health drinks, nutraceuticals, and the growing segment of “convenience drinks” as well as “ready to drink” items that are healthy, it is possible to market maple syrup as something in addition to its more North American function as “pancake syrup”. Not only could maple syrup be more marketable in the health food category, but it is important to note that consumers in export destinations in European countries do not regularly eat pancakes as they are in the U.S., thus marketing maple syrup primarily as a pancake syrup internationally is limiting.

Both the functional food and beverage categories are highly strategic marketing channels for U.S. and Vermont sugar makers given the health benefits of the product and that the functional food category is booming in markets across the world. In 2016, healthy food and drink sales grew by 10% in India and 11.3% in Costa Rica while snack purchasing grew by 4.2% in Columbia and Mexico and consumers began purchasing healthy snacks two to four times more often as indulgent ones. In Vietnam, the healthy drink category grew by 10.3% in 2017 and it remains one of the fastest growing categories in the country<sup>52</sup>. The functional beverage market in the U.S. is forecast to grow to \$208 billion by 2024.<sup>53</sup> The functional foods market in the U.S. alone was a \$300 billion market in 2017 with estimates that it would reach over \$440 billion in 2022. Globally, revenues in 2017 were \$299.3 billion.<sup>54</sup>

## Industry Constraints and Improvements

### Market Challenges

Despite the opportunities to market maple syrup in growing global markets as well as the functional food and beverage categories, there are still a growing number of market challenges and industry constraints

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<sup>49</sup> Katherine M. Phillips, Monica H. Carlsen, and Rune Blomhoff, “Total Antioxidant Content of Alternatives to Refined Sugar,” *Journal of the American Dietetic Association* 109, no. 1 (January 2009): 64–71, <https://doi.org/10.1016/j.jada.2008.10.014>.

<sup>50</sup> Liya Li and Navindra P. Seeram, “Maple Syrup Phytochemicals Include Lignans, Coumarins, a Stilbene, and Other Previously Unreported Antioxidant Phenolic Compounds,” *Journal of Agricultural and Food Chemistry* 58, no. 22 (November 24, 2010): 11673–79, <https://doi.org/10.1021/jf1033398>.

<sup>51</sup> Jean Legault et al., “Antioxidant Activity, Inhibition of Nitric Oxide Overproduction, and in Vitro Antiproliferative Effect of Maple Sap and Syrup from *Acer Saccharum*,” *Journal of Medicinal Food* 13, no. 2 (April 2010): 460–68, <https://doi.org/10.1089/jmf.2009.0029>.

<sup>52</sup> “Booming Snack Sales Highlight a Growth Opportunity in Emerging Markets.”

<sup>53</sup> Functional Beverage Market – Growth, Trends, Forecasts (2019 – 2024).

<https://www.mordorintelligence.com/industry-reports/functional-beverage-market>

<sup>54</sup> U.S. Functional Foods Market. Statistics and Facts. Statista.com.



that producers should be aware of. These include trade disputes with foreign countries, particularly Canada, high costs of tapping and processing, harsh winters and climate change, uncertain pricing, and off-flavored syrups.

*Trade disputes.* Trade disputes between countries can lead to fluctuations in prices and even become a growth deterrent. For example, Canada was embattled in a trade war with the U.S. which greatly affected the production value of maple syrup. After the U.S. imposed duties of 25% on Canadian steel and 10% on aluminum, Canada retaliated with its own tariffs ranging from 10-25% on a number of U.S. goods such as orange juice, whiskey, ballpoint pens, toilet paper, yogurt, and maple syrup. Implementation of the 10% sugar and syrup tariff hurt U.S. states exporting syrup to Canada, especially Maine, which is its biggest trading partner for many goods, including maple syrup. In 2017, Canada imported about \$13 million worth of maple syrup from the U.S., 75% of which was sourced from Maine. With the tariff, Maine expected Canada's reliance on imports to decrease to avoid having to pay the tax, and likely lost out on a valuable sales channel in 2018.<sup>55</sup> However, in 2019, the U.S. agreed to lift the steel and aluminum tariff and as a result, Canada's retaliatory tariffs were lifted as well.

*High processing cost.* High costs of procuring maple sap and converting sap to syrup coupled with the seasonality of maple syrup can also limit growth. Major processing costs of maple sap include plastic tubing, connectors, vacuum pumping, vacuum storage tanks and labor for tapping, tubing, routine maintenance and repairs, and cleaning/storage. The major processing costs of converting sap to syrup include labor, energy/fuel, and capital equipment such as land, building and plant equipment.

*Climate Change.* The harsh winter throughout much of Canada in 2017 created a change in production trends as most provinces produced less in 2018 than in previous years. As weather is not entirely predictable, the levels of future production are also somewhat unpredictable. Two recent studies found that producers are noticing and responding to climate change-related impacts to protect the bottom line. Data show wide consensus among maple syrup farmers that the start of sugaring season is earlier and that seasonal weather is less predictable.<sup>56,57</sup> Farmers like Stu Peterson, who produces maple syrup on Star Lake in Minnesota, say increasingly erratic seasons, which many attribute to a changing climate, make harvesting the already temperamental crop even more challenging. A study conducted by the Northeast Climate Science Center analyzed the effects of climate variation on sugar maple syrup quality and concluded that by the end of this century, tapping would start 2-3 weeks earlier and that the best regions for maple sap production will be further North, with corresponding declines in production.<sup>58</sup> Several producers are feeling the effects of global warming resulting in drops in the amounts of maple obtained due to sap flowing to the top of the tree rather than down to the taps, a result of warming weather and

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<sup>55</sup> With Maple Syrup tariff, Canada-US trade dispute spills beyond metals. Reuters.com June 4, 2018.

<https://www.reuters.com/article/us-usa-trade-maplesyrup/with-maple-syrup-tariff-canada-u-s-trade-dispute-spills-beyond-metals-idUSKCN1J02MS>

<sup>56</sup> "Maple Syrup Inc.: Vermont's Maple Syrup Tradition Goes High Tech, High Finance," *Christian Science Monitor*, April 18, 2018, <https://www.csmonitor.com/USA/Society/2018/0418/Maple-syrup-inc.-Vermont-s-maple-syrup-tradition-goes-high-tech-high-finance>.

<sup>57</sup> "Maple Syrup Producers Face Challenges in Warming World | Boston.Com," accessed May 8, 2019, <https://www.boston.com/news/local-news/2017/02/21/maple-syrup-producers-face-challenges-in-warming-world>.

<sup>58</sup> Toni Morelli et al., "Final Report for Climate Effects on the Culture and Ecology of Sugar Maple," 2018.



fewer frigid nights.<sup>59</sup> It is crucial to have freezing temperatures at night, mixed with moderate 40-45°F days for optimal production.

*Pricing Uncertainties* A re-mapping of the industry's footprint and less predictable, shifting seasons are overlaid by producers' preoccupation with seasonal pricing uncertainties. University of Vermont Extension Farm Business Management Specialist Mark Cannella believes variation in bulk pricing has put more pressure on single product line producers and mid-sized farms. Bulk sales make up 80-90% of the state's production. He writes that "...bulk price over the past three years has forced many maple business owners that sell bulk syrup to question if they are or will be at the right size to stay viable. Agricultural research has demonstrated how mid-scale farms can often get stuck in the middle of the push and pull of economics and consumer preferences."<sup>60</sup>

David Folino, who runs the 15,000-tap Hillsboro Sugarworks farm in Starksboro, VT compares dicey pricing patterns and the industry's response to them to the economic maelstrom that beset the dairy industry. His predictive piece in the industry's *Maple News* describes his observations and his concerns.

"I've watched the price of milk fluctuate dramatically over the past four decades, and during that time, I've watched dairy farmers use a strategy which seemed counterproductive and doomed to failure," he writes. "When dairy prices are high, most dairy farmers, whenever possible, add cows to take advantage of the increased price. And, when the price drops, they frequently add more cows to make more milk to pay the bills. Each side of the cycle drives increased milk production, and every round of low and high prices pushes farmers toward bigger farms with larger herds and supposedly greater economies of scale, but more debt."

He compares this to sugar makers' tendency to add more taps to soften the impact of changing prices, without considering the fundamentals of supply and demand. He writes, "It's my feeling that this economic trap could be avoided if we start to think more about maple marketing and promotion."<sup>61</sup>

*Balancing wholesale and retail operations.* Growing retail opportunities and a shortage in labor has proven to be a challenge for small to mid-size maple operations. Twin Maple Sugarworks, co-owner Matthew Chagon says balancing wholesale and retail is a challenge for their 10,500-tap operation. He reports that although 85-90% of the business is wholesale bulk syrup and 10-15% is retail (syrup, sugar, candy, and cream), they have more retail opportunities than they can tackle, especially for products marketed online. For example, he notes an increased demand for maple sugar and permeate water that he attributes to "people changing their diets to include more natural sweeteners." But the additional time needed to service those markets is hard for owners like him who still need to hold off-farm jobs to make ends meet.

For maple syrup farms who straddle the line between being a small- and medium-sized operation and do a lot of direct sales, there are other challenges. Betsy Luce of Sugarbush Farm in Woodstock notes that it's increasingly difficult to secure enough staff to run their sales operations. Sugarbush Farm has about 9,000 taps and sells all of its maple products retail, half in their farm store and half through their website,

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<sup>59</sup> <https://www.burlingtonfreepress.com/story/news/2017/02/22/maple-syrup-producers-face-challenges-warming-world/98225592/>

<sup>60</sup> "Low Bulk Prices Squeeze the Middle Sized Producer," The Maple News, accessed May 6, 2019, <http://www.themaplenews.com/story/low-bulk-prices-squeeze-the-middle-sized-producer/221/>.

<sup>61</sup> "Opinion: How Is Sugaring like Dairy Farming?," The Maple News, accessed May 6, 2019, <http://www.themaplenews.com/story/opinion-how-is-sugaring-like-dairy-farming/150/>.

but they also make cheese and offer on-site demonstration tours showcasing their sugaring and cheesemaking operations.

*Alternate equipment and industry credibility.* Producers have found ways to use non-food grade alternate equipment that is makeshift in nature. Due to social media and wide-spread instructional videos on Youtube, there are more producers are entering the market with limited knowledge and inferior supplies, which sends an image that maple production can be done easily and damages the industry's credibility and perception of quality assurance.<sup>62</sup>

*Off-flavored syrups.* As producers try to be innovative, there is evidence of off-flavored syrups appearing in commercially available products. The most common off-flavors include Metabolism, which may be due to a rapid shift in temperatures and has a woody, popcorn, or cardboard flavor; Buddy, which is related to a tree's exit from dormancy and has a chocolate or tootsie roll flavor; and Sour Sap, which is a result of syrup being held too long at warm temperatures that promote growth of microorganisms and have a slightly ropy appearance and a sour taste. Having off flavors enter the retail markets, as they currently are due to a lack of quality control, may be damaging to the maple syrup industry. More training is encouraged and the blending of off-flavored syrup with high quality syrup is discouraged.<sup>63</sup> The University of Vermont Extension Maple Program developed an off-flavor syrup reference kit containing three bottles of these common off-flavors meant for all operators of a sugarhouse to sample and discuss in order to develop the tastes for and identify off-flavors in their product.<sup>64</sup>

## Industry improvements and technological innovations

Many producers are tackling the uncertainties caused by market challenges and industry constraints by expanding operations, adopting new technology, re-tooling production, and developing niche markets and brands.

*Expanding Operations.* Runamok Maple, a 1,350-acre organic operation in Cambridge and Fairfield, VT has expanded from 28,000 taps in 2009 to 71,000 taps today. Their operation has 7,000-gallon holding tanks, and \$1 million worth of sap collecting and processing equipment. Runamok has an extensive line of value-add products, including infused, smoked, and barrel-aged artisanal syrups. Butternut Mountain Farm, a 40-year-old operation headquartered in Morrisville, is another example. Over the last several decades, the 25,000-tap operation developed a business model to support large-scale processing, packaging, and distribution of syrup and other products for Vermont producers. Currently, Butternut Mountain Farm services 350 Vermont maple farms at its 75,000-square-foot facility, one of the largest in the U.S. Butternut Mountain Farm's sap supply represents only a small fraction of the raw material that they process and package annually.

Large-scale investments have afforded the ability to enter the market and expand rapidly. Sweet Tree Holdings, a subsidiary of Wood Creek Capital, quickly became the largest maple syrup processor on the globe after purchasing a vacant, former furniture factory in the town of Island Pond, Vermont in 2015. It then installed four massive steam boilers on site for processing, and immediately tapped 200,000 sugar

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<sup>62</sup> International Maple Syrup Institute Report. May 2018.

[http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/international\\_maple\\_syrup\\_institute\\_report\\_may\\_2018.pdf](http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/international_maple_syrup_institute_report_may_2018.pdf)

<sup>63</sup> International Maple Syrup Institute Report. May 2018.

[http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/international\\_maple\\_syrup\\_institute\\_report\\_may\\_2018.pdf](http://www.internationalmaplesyrupinstitute.com/uploads/7/0/9/2/7092109/international_maple_syrup_institute_report_may_2018.pdf)

<sup>64</sup> "Off-Flavor Syrup Reference Available," The Maple News, accessed July 19, 2019, <http://www.themaplenews.com/story/off-flavor-syrup-reference-available/137/>.

maple trees.<sup>65</sup> By 2018, they had 500,000 taps installed, with plans for 1.5 million taps within five years.<sup>66</sup> The industry points to Sweet Tree as an example as to how maple syrup has become a commodity like oil or metals. Only three years after emerging, the company was sold to a private equity firm in Montreal.

*Technological Innovations.* In addition to expanding, Runamok Maple has invested in high tech equipment to assist in production. They utilize multi-million dollar equipment including reverse osmosis machines that remove water from sap, a steam powered evaporator, and iPhone-connected monitoring systems. Reverse osmosis machines are used by many producers to speed the boiling process, reducing both time and energy costs. Now, there are newer machines that remove even more water, further quickening the boiling times. What once took 12 hours, can now be done in 30 minutes per batch. With their technological investments, Runamok can now focus on selling direct to consumer without needing to produce bulk – something that’s atypical among sugar makers, many of whom grade their syrup, put it in drums, then sell the product to a regional packer that combines and resells to retailers or other food companies.<sup>67</sup>

Less high-tech, but very effective is the tubing and attached vacuuming systems that many producers now rely on to pull sap out of the tree. This method is much faster than the traditional one of relying on gravity to collect the downward flow of sap. This technology can lead to higher yields, and because the tubing typically directs the flow into large sterile holding tanks, it reduces the burden and associated labor costs of removing, emptying, loading, and replacing the thousands of buckets that were once used to collect sap.

*Niche Markets.* Per the IMLS, the maple industry should take advantage of consumer demand for “customization.”<sup>68</sup> There are many value-added products and gift packaging that are widely used as wedding favors, corporate gifts, thank you tokens, and innovative products for ingredients and culinary pursuits. Developing unique and niche products utilizing pure maple syrup lessens the competition and can result in increased profit margins for producers and expanded utilization among consumers. Many producers have been tapping into the niche health market, catering to those with special diets, allergies, athletic needs, and varied taste preferences. The Vermont maple syrup industry should focus on capturing more niche markets to gain first mover status in categories such as snacking, baked goods, wellness and dieting, specialty or customized packaging/branding, and flavor-infused syrups to gain a large competitive advantage over domestic and global rivals. As demonstrated by Runamok, the use of technology can alleviate pressures on maple syrup operations to sell bulk and instead focus on these niche markets and selling direct to consumers.

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<sup>65</sup> <https://www.csmonitor.com/USA/Society/2018/0418/Maple-syrup-inc.-Vermont-s-maple-syrup-tradition-goes-high-tech-high-finance>

<sup>66</sup> <https://www.wbur.org/bostonmix/2018/03/14/vermont-maple-syrup-industry>

<sup>67</sup> <https://www.csmonitor.com/USA/Society/2018/0418/Maple-syrup-inc.-Vermont-s-maple-syrup-tradition-goes-high-tech-high-finance>

<sup>68</sup> “Towards a Collaborative Maple Syrup Marketing Effort for the U.S.A. and Canada.”

## Opportunity Analysis and Recommended Engagement

Farmers across the maple sugar belt, from New England to the Upper Midwest, recognize the industry is undergoing tremendous change, and the same holds true in Vermont, the leading U.S. state in maple syrup production. Research and producer feedback back this up. Farms face multiple challenges and opportunities related to climate change, uncertain pricing, and increasing regulation, as well as incentives to adopt new technology, develop new products, and cultivate unique brands. The demand for maple syrup has seen a steady rise, and this adds additional pressure on farms to evolve quickly to meet the needs of growing markets. There are several marketing strategies and areas of opportunity the maple industry can focus on to help farmers capture this market share, including the following:

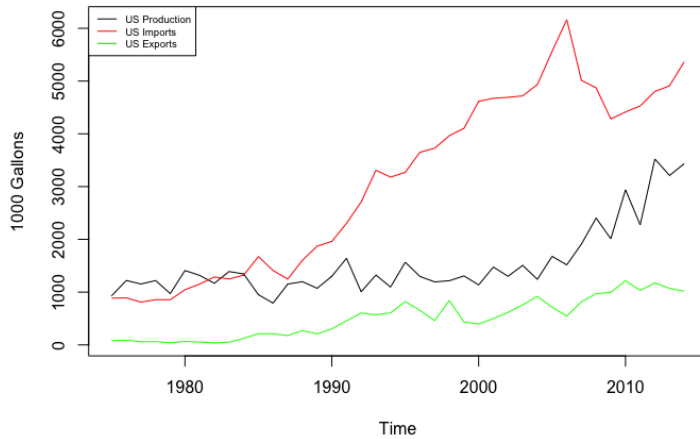
- Focus on gaining larger market shares of top importing countries such as Australia, which imports 4.4% of the world's syrup, 95% of which comes from Canada, and Japan, which imports 5.9% of the world's syrup, 98% of which comes from Canada. Alternatively, the U.S. can focus on smaller importers who are among the fastest growing. Algeria demonstrated a five-year CAGR of 145% and Croatia a 76% CAGR. China imports a considerable amount of maple syrup having spent \$1.26 million on imports in 2017 and had a high five-year CAGR of 56%.
- By entering or expanding into a variety of niche markets, maple operations can gain first-mover advantages by being early entrants in segments with limited competition, allowing them to reap huge profit margins and take more control over resources and ownership of the value chain. Niche markets include the health and wellness segments, snacking and baked good industries, alcoholic beverage categories, and customized branding/packaging as well as specialty pure maple syrup that is flavor-infused or barrel-aged.
- There is a vast amount of research backing health claims of maple syrup in a time when health concerns are rising and health awareness growing. As a result, maple syrup can be marketed as a pure, organic, healthful sweetener that can substitute for less healthy options such as sugar or corn syrup. Maple water is also rising in popularity as a nutrient-rich drink providing electrolytes, vitamins, and anti-aging properties. Syrup makers can expand their product lines by producing maple water using overflow of unprocessed sap.
- While the industry has invested in research, more work is needed to come to more conclusive evidence of the health benefits of maple syrup. Professors at the University of Rhode Island and the University of Montreal agree that the industry is just scratching the surface in discovering potential health benefits of maple across various disciplines. Only recently, have maple products been found to potentially prevent and delay chronic inflammatory diseases or be comparable to a sports drink during prolonged exercise. The industry should consider making additional investments in research to uncover even more health benefits that can be marketed to health-conscious consumers.
- Maple syrup also has an enormous opportunity thanks in part to the growing trends in snacking and dieting. Maple is used to flavor nuts, trail mix, granola, popcorn, yogurt, and apple sauce among other foods as healthy snack options. New maple products are continuously launching across the globe, particularly in the U.K. Independent producers or large-scale packers can work collaboratively with other food industries to create new products to launch in the U.S., thereby driving the demand for maple syrup up.

- Maple is used in flavored syrups for coffees and other hot drinks, but is also utilized by craft distilleries and breweries as an ingredient in alcoholic beverages such as bourbon, whiskey, gin, and beer. Several of those using maple products in their drinks are located in Vermont. Local producers can collaborate with local brewers to create maple-flavored beverages, further driving up demand for U.S. maple syrup.
- When possible, technology such as tubing, reverse osmosis, and steam-powered evaporators should be used when tapping and producing syrup to improve efficiency, generate more product, and reduce costs of labor and energy. These advancements have negated the effects of harsh winters caused by climate change such as warming temperatures and shorter seasons. The effectiveness of high technology has also been shown to reduce the need to rely on bulk sales, allowing operations to turn their focus towards niche markets and direct sales to consumers.

In addition to these recommended engagement strategies, an abbreviated global SWOT analysis outlining the strengths, weaknesses, opportunities, and threats of the maple industry was conducted based on our research findings and is presented in Appendix B of this report.

## Appendix A: Trend Analysis of US Maple Industry Methodology

In this section, we will consider the time series properties of our data to consider trends in production, exports, and imports and make forecasts about the future. We begin our analysis by testing each of our three series of interest, namely US imports, US exports, and US production, for unit-root non-stationarity. This allows us to determine which type of model is appropriate for forecasting and examining relationships among these three time series.



**Figure 12.** U.S. Imports, Exports and Production

We employ the Augmented Dickey-Fuller (ADF) test to investigate whether the series exhibit stationarity, i.e. whether the series are mean-reverting processes, allowing for the possibility of a deterministic time trend. Based on a plot of the data (displayed above), each series appears to be trending up over time. Additionally, the series each appear to follow a random walk. This implies that a deterministic trend is appropriate to include when testing for a stochastic trend, i.e. a unit root, by means of the ADF test.

Table 8 displays the results of the ADF test, indicating that each of our three series of interest exhibits unit-root non-stationarity, meaning that even after controlling for a deterministic trend, each series is not mean-reverting.

Table 8: Augmented Dickey-Fuller Tests

Variable	Test Statistic	Stationary?
Production	0.1149	No
Imports	-3.3901	No
Exports	-2.0678	No
Imports/Exports	-3.2568	No
Cointegration Test	-1.5788	No

Based on the results of the ADF unit root tests, we conclude that cointegration analysis is appropriate. The purpose of cointegration analysis is to examine whether there exists a long-run equilibrium between two or more nonstationary time series. In other words, although the series each are moving individually over time, they might be moving together over time. More specifically, the series might imply that a linear combination of the variables, e.g. the difference between two variables, is a stationary time series.

The table below displays the estimates from the cointegration relationships. The dependent variable in the regression below is US production. We consider the possibility that US production, imports, and

exports might have a stationary relationship over time. The estimation results suggest an inverse relationship between imports and production in the US, meaning that years with higher imports tend to be years with lower production of US maple syrup. The coefficient on exports was found to be statistically insignificant, which indicates that outside factors are likely contributing more to the quantity of exports than total US maple syrup production. Lastly, the time trend was found to be statistically significant at the 1% level. In particular, the trend coefficient indicates that, all else equal, US maple syrup production is trending up at approximately 116,000 gallons per year. Finally, we test the three series for cointegration (displayed in the last row of the previous table) and find that there is no long run equilibrium between these three time series, meaning the relationship between production, imports, and exports is changing over time rather than exhibiting stationarity.

Table 9: Cointegration Relationship Estimation

Variable	Estimate	Std. Error	p-value
Intercept	-543.7585	443.4754	0.23513
Imports	-0.3522*	0.1859	0.07349
Exports	0.5278	0.861	0.39987
trend	116.6074***	3.576	0.00201

After finding no cointegration in our three time series, we conclude that a vector autoregression (VAR) is appropriate (as opposed to a vector error correction model in the case of cointegration). We estimate a vector autoregression with our three time series for the purpose of forecasting imports, exports and production five years into the future. Using the available data, we estimate the parameters of the VAR and generate forecasts using conditional expectation, since this forecasting method minimizes mean squared forecast error. The plot of the forecasts from 2019-2024 is displayed in the table below.

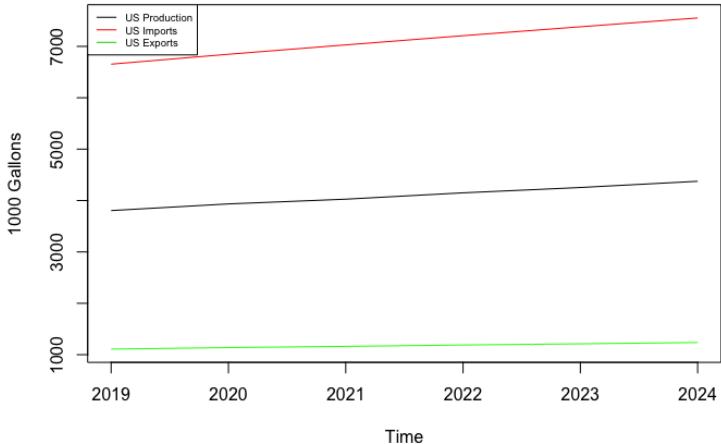


Figure 13. Five-Year Projects of U.S. Imports, Exports and Production

As can be seen, our forecasts suggest that US imports and total production of maple syrup will rise consistently through 2024, with steeper growth in former. US exports, in contrast, are forecasted to remain relatively constant throughout this period. These forecasts suggest that the import-export ratio of US maple syrup will continue to widen as imports grow and exports remain relatively constant.



## Appendix B: Global SWOT Analysis

Based on our research findings and available data, a SWOT analysis was conducted to demonstrate the strengths, weaknesses, opportunities, and threats relevant to the U.S. maple syrup industry in the competitive landscape.

### S

Increase in innovative funding programs used to support Maple production (state and federal)

Stable per gallon price points for bulk sales

Continued global increase in consumption of maple syrup and maple sugar-based products

### W

The primary “bulk” sales strategy used by many producers can cause potential pitfalls seen by the dairy industry, which faced mass consolidation that led to the closure of many small farms

Limited availability of cost-effective technologies such as enhanced tubing and vacuuming systems for small-scale operations

### O

A continued global CAGR

Only 2% of sales are retail related –the highest forecasted growth area

Consumer push for “local” and “organic” products and branding

Consumer demand and growth for specialty retail market (<2% of sales), including functional health and wellness products, maple infused alcoholic beverages, and maple water

### T

The #1 threat is global warming as average surface level temperature limits the number of cold nights needed for good production

Trade disputes and tariffs can impact the availability to import/export the product or the price point

Price constraints controlled by the global market leaders based in Quebec

Advancements of other artificial syrups/sugars