



CANADA'S MAPLE SYRUP INDUSTRY, *eh!*





CBV INSIGHTS

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INTRODUCTION

Producing maple syrup is an art that has endured for centuries. While the craft itself is not new, the industry is constantly evolving. Understanding the origins of maple syrup is crucial for gaining insight into its current state and future trajectory. The maple industry offers many production opportunities, growth, innovation, and international expansion opportunities. However, it also faces challenges, especially regarding climate change, production volatility, attracting labour, and the need for succession.

The maple syrup industry is an industry where Chartered Business Valuators (CBVs) can offer expert insights to navigate the complexities. Whether it's understanding the production processes, evaluating the economic and non-economic factors, or recognizing the unique assets such as maple trees, as in many other industries, CBVs can offer invaluable expertise and a unique, expert perspective in assessing the value of maple syrup businesses.

This article aims to provide readers with industry-specific knowledge by delving into the historical roots of maple syrup, its production methods, the industry dynamics, and its relevance in business valuation.

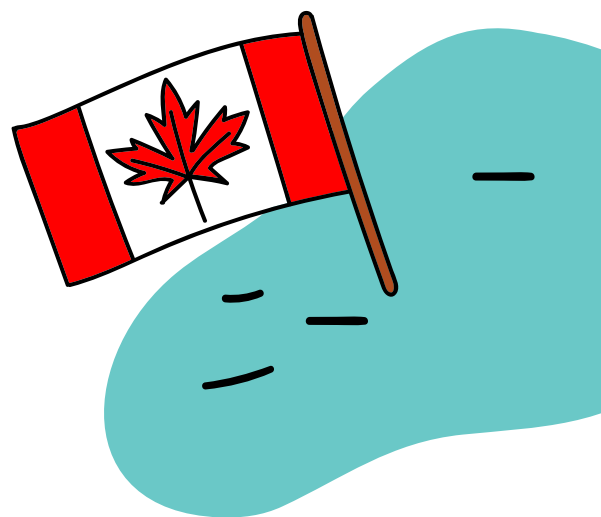
The maple syrup industry encompasses various players engaged in multiple activities. Among the key players are the owners of the maple trees (sugar bushes), the sap harvesters, the maple syrup producers, firms specializing in packaging and bottling, distributors and wholesalers, and retailers. Some offer the “sugar shack” experience, including hospitality services such as restaurants and entertainment. Some producers have retail operations, while others create maple syrup goods sold in grocery stores or gift shops.

It is beyond the scope of this article to discuss specific valuation approaches and methodologies used by CBVs. The article does not intend to provide readers with “everything” they need to know about the maple industry.

Instead, this article will focus on the underlying business fundamentals of a maple syrup producer, industry-specific factors, and the unique asset (maple trees) that provides the raw material for generating cash flow, as these elements are crucial for understanding value.

While the maple syrup industry is significant, business valuators must recognize the unique economic and non-economic factors shaping this sector. While economic considerations are substantial, the maple syrup industry is still primarily driven by passion and tradition, which often carry more weight than purely financial interests.

The article will mainly focus on the province of Quebec, given its status as the dominant maple syrup producer globally. Quebec is home to the Quebec Maple Syrup Producers (QMSP), known in French as “Les Producteurs et Productrices Acéricoles du Québec” (PPAQ), which is a leading professional association representing maple syrup producers in the region. QMSP is the largest and most influential organization in the maple syrup industry, pivotal in shaping market dynamics.





ORIGINS & CULTURAL HERITAGE

For many, maple syrup is simply something you add to your pancakes and waffles. However, in Canada, particularly Quebec, the world's leading producer of maple syrup, the sweet sticky stuff is called *l'Or Blond*, "liquid gold", reflecting the cultural and economic significance of maple syrup production in the region.

Maple syrup is highly coveted globally for its distinct flavour profile.¹ Originating from the sap of maple trees (also called maple water), it is 100% natural and contains numerous health benefits. Because it is a natural sweetener, its singular ingredient forms the basis of countless exceptional recipes.

In Canada, maple syrup has a rich history, deep cultural meanings, and substantial economic impact. It is rooted in our national identity, and the maple leaf captures its significance. It is represented on our national flag and a name and logo of a professional hockey team, the Toronto Maple Leafs.

The origins of maple syrup go back to Indigenous peoples. They were the first to master the art of making maple syrup. Indigenous peoples value the sweet sap (or maple water) for various uses. They recognize the sap as a source of energy and nutrition. There are many myths and legends on how it originally started. One popular legend is that Chief Woksis of the Iroquois threw his tomahawk at a maple tree next to a fire to discover that the sap turned into syrup the next day.²

It did not take long for settlers to encounter maple sap and syrup. Explorer Jacques Cartier compared maple sap to a good wine.³ There is a written record of producing maple syrup going back to 1606.⁴ With the know-how of the Indigenous, European settlers learned the process of maple syrup making, giving birth to a tradition that is still strong today.





LA CABANE À SUCRE - THE SUGAR SHACK

La cabane à sucre, the “sugar shack,” is a rustic wooden cabin used to make maple syrup. In the past, it was where people got their sugar. Today, sugar shacks are a source of economic activity built on centuries of tradition. But beyond the commercial aspect, a vital spring ritual is associated with the sugar shack. As the winter thaw begins, the sugar shack is a place of tradition where families and friends gather in rustic log cabins for a traditional culinary experience filled with festivities. Today, many sugar shacks continue to provide the authentic traditional experience, complete with horse-drawn sleigh rides, guided tours, and folk music.

LA SAISON DES SUCRES - SUGAR SEASON

In Quebec, a saying symbolizes the season, “*le temps des sucres ou la saison des sucres*,” which translates to “the sugar season.” “Sugar season” is synonymous with the end of winter, the beginning of spring, and the start of sugar shack operations. For Indigenous peoples, that period is symbolized by the Sugar Moon, signifying the start of the maple season with the arrival of the March full moon. The “sugar season” usually lasts four to six weeks and ends when the buds on the maple tree swell in preparation for flowering and leafing out.

Traditionally, the “sugar season” would start around March 15 and run until the end of April. However, due to warmer weather caused by climate change, it is not unusual to see boiling in mid-February until the end of March.



PRODUCTION PROCESS

The art of producing maple syrup is called “sugaring.” The short, oversimplified version of making maple syrup is:⁵

1. Tap the maple trees.
2. Collect the sap (maple water).
3. Boil the sap until it becomes maple syrup.
4. Enjoy.

The reality is more complex. Each step comes with several micro-steps. One cannot simply go into the woods with a drill bit and tap trees. It takes a certain level of know-how. Hitting the sweet spot is a matter of precision. It takes a lot of craftsmanship and knowledge to make a high-quality product. It is as much of an art as it is a science.

To make maple syrup, you need two ingredients: 1) Maple trees and 2) Lots of time.



MAPLE TREES AND SUGAR BUSH

Maple trees are the most important asset because they provide the critical raw ingredient: maple sap. A sugar bush (maple grove) is a collection of maple trees in the same area. A desired sugar bush has between 200 to 300 taps per hectare (80 to 120 per acre). Tree height is used as a reliable indicator of site quality. Trees grow taller on better sites. The volume of sap produced, and the sap sweetness are determined by the volume of the crown and by the diameter of the tree. Trees that grow more slowly often produce smaller amounts of sap, which may also be less sweet. This can be attributed to suboptimal soil conditions and forest management practices.

There are approximately 13 native maple trees in Canada (more than 150 species worldwide), and four are preferred for maple syrup production. The preferred maple tree is the *Acer Saccharum*, better known as the sugar maple tree. The other trees are the red maple (*Acer rubrum*), black maple (*Acer nigrum*, located south of Quebec), and silver maple (*Acer saccharinum*, located in wetlands). Sugar maple and red maple are the predominant trees in the production of syrup. The highest sugar concentration is found in the sap of sugar maple. While the sugar maple is highly prized, a producer will tap different types of maple. A producer would prefer a healthy, productive red maple over an unproductive sugar maple.

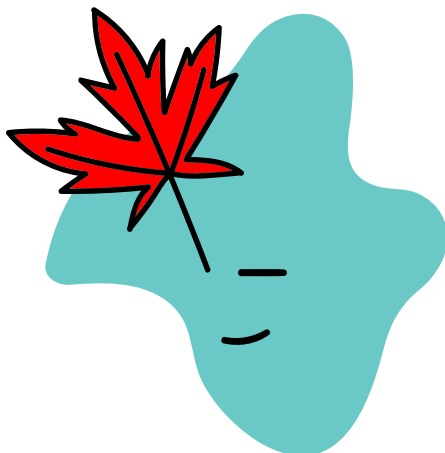
The tapping process is one of the most critical steps. It influences the quality of the sap collected, the yield by tap hole, and the tree's health. A producer aims to maximize yields over the long term. The more sap that is collected, the more maple syrup that is produced. This is why sustainable forestry practices are the foundation for maximizing yields over the long term.

When tapping a tree, it must be at least 10 to 12 inches in diameter. It can take 40 years for a tree to reach that size. A second tap may be added to trees between 20 and 25 inches in diameter and a third tap after 25 inches.⁶ A maple tree should not have more than three tap holes. It is important to note that the law of declining marginal utility is at work. Adding another tap hole does not double your yield. Sap yield is highly variable due to many factors, such as the weather, which is outside the producer's control.

A tap hole is never more than five centimetres (two inches) because a producer does not want to hurt the tree. (This is referred to as "scaring the tree.") Maple syrup makers want the maple tree to provide sap for decades. Trees are resilient and heal well. With proper care, it is not unusual to see 100-year-old maple trees producing sap.

Since maple trees are the most important asset and producers aim to maximize yields over the long term, it is in their best interest to adapt best practices to ensure the long-term sustainability and productivity of their operations. Strong, regenerating forests align with sustainability goals, which is beneficial not only to producers but also to the broader environment.

Forest biodiversity and conservation are essential. As it is not recommended to tap a maple tree until it reaches approximately 10-12 inches in diameter (approximately 40 years), it is easy to recognize the importance of the need for a healthy ecosystem to ensure long-term sustainable development. Maple producers must think in multi-generation. The tree you planted today is for your children (1st tap hole) and grandchildren (2nd tap hole).





SAP HARVESTING

Understanding the process of sap flow is important, as it provides the raw material from which maple syrup is made.

Maple sap is a clear fluid made of sugar and water (also known as maple water; it's drinkable and delicious). Sap flows due to a combination of factors influenced by seasonal changes. It is highly dependent on the weather. As temperatures rise in early spring, typically above freezing during the day while still dipping below freezing at night, a pressure differential develops within the tree.

This fluctuation in temperature causes the sap to move upward from the roots towards the branches. Sap flow occurs when daytime temperatures are above freezing (4-7°C) and nighttime temperatures drop below freezing (-4 to -1°C). Temperature fluctuations are essential because they create the necessary pressure for sap to flow efficiently. If the temperature is flat, it will not flow.

Sap is collected in buckets or through a system of tubing that directs the sap to a collection tank. Modern maple producers use vacuum pumps, which vastly increase the sap collected from each tap hole. Vacuum pumps play a significant role in increasing productivity. It can increase sap yield between 50% and 200%.⁷ As long as a producer follows conservative tapping guidelines, it does not endanger the health of the tree.⁸ As proof of sustainability, maple trees have been tapped for more than 100 years.

Sap yield is usually expressed in terms of the number of tap holes rather than the number of trees.⁹ The amount that comes out of each tree can vary widely depending on factors such as the tree's age, size, health, species (e.g., sugar maple, red maple), weather conditions, tapping techniques, and geographical location.

A mature sugar maple tree can produce roughly 40-80 litres (10-20 gallons) of sap per tap hole. However, it is important to note that this is a general estimate, and actual sap yields can vary significantly.



BOILING

Maple syrup is obtained by concentrating 100% natural raw sap, or “maple water.” It is made through evaporation and concentration by osmosis and boiling to a sugar density of 66° Brix (the sugar content of the sap).

Generally, the rule-of-thumb ratio for turning sap into syrup is 40-to-1. Working with the previous guidelines, a tap hole that provides 40 litres of sap will yield one litre of maple syrup. The 40-to-1 ratio is not carved in stone and is misleading. Ask anybody who has made maple syrup, and they will tell you that this ratio can widely vary. It is not unusual to see ranges that vary from 20 litres to 100 litres of sap to make one litre of syrup. There are many factors that influence the concentration of sugar in the sap, such as the health of the tree, soil conditions, climate, water availability, and the time of the year.

People in the industry prefer the Jones “Rule of 86” because it takes into account the sugar concentration of the sap (how sweet the maple water is). The “Rule of 86” is a more reliable measure of how much sap it really takes to make one gallon of maple syrup.

The “Rule of 86” was devised in 1946 by C.H. Jones, a scientist and educator at the University of Vermont.¹⁰ The rule states that if one divides 86 by the sugar content of sap (measured in Brix), one can estimate the amount of sap required to produce a gallon of syrup.

If the sap’s sugar content is 2 Brix, then according to the “Rule of 86”, dividing 86 by 2, it would take 43 litres of sap to make one litre of maple syrup.

$$S = 86/X \text{ and } W = S - 1$$

Where: S = the initial volume of sap (or concentrate) required to produce 1 gallon of syrup
 X = the starting sap (or concentrate) sugar concentration in Brix
 W = the amount of water to be boiled off to produce 1 gallon of syrup

(Nomenclature from the North American Maple Producers Manual, Second Edition, 2006)

Source: <https://mapleresearch.org/wp-content/uploads/1013jonesruleof86.pdf>

The 40-to-1 ratio, or the “Rule of 86,” is a rough guideline. They are quick estimates and come with limitations. Other factors outside the tree itself, such as operational issues, can impact the production yield.

To save time, energy, and money, some producers will make the maple sap go through a reverse osmosis process (also called concentration). It is an essential step in maple syrup production that concentrates maple sap before boiling, leading to faster and more efficient syrup production with improved quality and yield. The goal is to increase the concentrate’s final Brix by removing the amount of unsweetened water, which directly reduces the boil time. The sweeter the concentrate, the less energy is required, and the impact on the cost per barrel.



MAPLE SYRUP

Generally, all maple syrup is made the same way and should be identical in density and maple sugar content. But not every syrup tastes the same.

There can be subtle differences in the flavour of maple syrup. Maple syrup can vary in taste depending on several factors, including the species of maple tree, the region where it is produced, the time of harvest, and the processing methods used.

During boiling, maple sap undergoes caramelization and Maillard reactions, which contribute to the development of flavour compounds that give syrup its characteristic taste. Longer boiling times or higher temperatures can result in deeper caramelization and a more intense flavour profile.

Maple syrup is graded based on colour and flavour profiles, with different grades offering unique taste experiences. Flavours vary widely. Early-season syrup tends to be lighter in colour and has a milder, more delicate flavour, while late-season syrup is darker with a stronger flavour often described as “robust” or “full-bodied.”

There are four classes of maple syrup:¹¹

1. Golden (clear/lighter colour, earlier in the season)
2. Amber (delicate, mild flavour)
3. Dark (robust, more pronounced)
4. Very dark (darker syrup, end of the season)

There are two grades of maple syrup: Grade A and Processing Grade.¹² Grade A is the highest quality syrup, and only Grade A maple syrup is sold in stores. In Quebec, Centre ACER, which exists to promote and develop the maple syrup industry nationally and internationally, independently grades maple syrup to ensure consistency and quality standards. Centre ACER ensures that products meet high-quality taste, colour, and purity standards. The maple syrup grade establishes its market value. The higher the grade, the higher the price.



Source: The Québec Maple Syrup Producers (QMSP)



QUÉBEC MAPLE SYRUP PRODUCERS (PRODUCTEURS ET PRODUCTRICES ACÉRIQUES DU QUÉBEC)

The Québec Maple Syrup Producers (QMSP), known in French as the Producteurs et Productrices Acéricoles du Québec (PPAQ), is an organization representing maple syrup producers in Quebec. QMSP's primary role is to promote and defend the interests of maple syrup producers in Quebec. The QMSP, governed by an Act, regulates and collectively negotiates conditions (terms of payment to producers, quantity of maple syrup made available for sale, issuance of quotas, and conditions of sale to buyers).¹³ The QMSP represents the interests of the 13,300 people and more than 8,000 enterprises that produce maple syrup.

The QMSP is sometimes referred to as the "OPEC of maple syrup" and plays an important role nationally and internationally that cannot be overstated.

The QMSP ensures quality standards, invests in R&D, promotes Quebec maple syrup to international markets, and oversees regulatory compliance, industry standards, and environmental stewardship in the Quebec maple syrup industry.

It also sets the production rules for Quebec producers. The QMSP is known for managing the global maple syrup Strategic Reserve.¹⁴ And because of its supply management, it greatly influences price, which benefits producers outside of Quebec.

The QMSP operates as a marketing board, representing the majority of maple syrup producers in Quebec. It is responsible for collectively marketing and selling Quebec's maple syrup production. The QMSP is backed by legislation that requires maple producers to sell all their production almost exclusively to the QMSP.¹⁵

In The Economist,¹⁶ Joël Vaudeville of the QMSP said the industry operates in this way with the government's approval "so that maple producers can have a predictable and sufficient income to earn a good living."





STRATEGIC RESERVE

One of the notable functions of the QMSP is managing the maple syrup Strategic Reserve. The Reserve's purpose is twofold: 1) Ensure a constant supply and 2) Stabilize product prices. Maple syrup production is highly dependent on the weather; production volume can experience tremendous swings from year to year. Demand can also fluctuate. The Reserve's role is to make sure syrup is available to meet demand. The Reserve is designed to hold 133 million pounds of maple syrup (216,000 barrels). A barrel is 45-gallon. At total capacity, it would represent a value of \$400 million.



Source: <https://ppaq.ca/en/sale-purchase-maple-syrup/worlds-only-reserve-maple-syrup/>

Regarding current events, the QMSP had to tap into their strategic reserves to cover the maple syrup shortage. Due to poor harvest seasons and increased demand over the last few years, the reserve hit a 16-year low in 2023 when supply fell to 6.9 million pounds. To make up for the shortfall, the QMSP announced the issuance of seven million taps to be installed by April 1, 2026.¹⁷ At the time of writing, the 2024 maple harvest is promising, which is excellent news for the reserve.

Also noteworthy, the reserve was the subject of the "Great Canadian Maple Syrup Heist," in which 10,000 barrels of syrup – valued at \$18.7 million – disappeared. The theft was also the subject of a Netflix documentary, "Dirty Money."



THE MAPLE SYRUP QUOTA SYSTEM

The Quebec maple syrup quota system, managed by the QMSP, is a regulatory framework designed to stabilize the supply and price of maple syrup. The quota system was adopted in 2004 with the Règlement sur le contingentement de la production et de la mise en marché du produit visé par le plan conjoint des producteurs acéricoles du Québec.¹⁸

Each producer is assigned a production quota, the maximum amount of syrup they are allowed to produce and sell. This quota is based on factors such as the size of their sugarbush and historical production levels.

According to the QMSP, a producer's average annual yields are calculated yearly to determine whether their quotas should be adjusted higher or lower. For a marketing year, a producer's yield is calculated by dividing production by the number of declared taps for which a quota is held.¹⁹

The province of Quebec, as the largest producer of maple syrup in the world, and with the help of the QMSP quota system, has a significant influence on price and production, not only in Quebec but in the rest of Canada and the U.S. as well (stimulating the growth of their competitors). There is a similar situation in the oil market: non-OPEC oil producers benefit from OPEC's supply management.

THE REST OF CANADA

While most of the country's syrup comes from Quebec, the rest of Canada does have a presence. New Brunswick and Ontario are the largest producers outside Quebec.

Here's a table of maple syrup production by province in 2022:

Maple syrup production in 2022	Québec	New Brunswick	Ontario	Nova Scotia	Canada
Number of taps	48,672,648	3,523,948	2,013,549	420,383	54,647,591
Number of businesses	8,653	188	2,469	120	11,541
Maple syrup produced (ML)	72.5	3.7	2.7	0.2	79.1
Revenues (M\$)	621.6	33.0	31.2	3.0	688.7

Source: Natural Resources Canada <https://natural-resources.canada.ca/our-natural-resources/forests/state-canadas-forests-report/maple-syrup-production-and-climate-change-does-the-future-taste-sweet/24150>

Producers outside of Quebec have more flexibility in marketing and selling their syrup. In Quebec, most syrup is sold in bulk through the QMSP. In other provinces, maple producers can set their prices for syrup, often selling directly to consumers, local markets, and retailers.



INDUSTRY STATISTICS

2023 could have been a better year for maple producers. Statistics Canada shows maple syrup production hit a five-year low. Canadian maple producers harvested 10.4 million gallons of maple syrup in 2023, down 40.1% from the record-high production in 2022.²⁰ Quebec saw its production fall to 9.4 million gallons in 2023, down 41.3% from 2022 and the lowest since 2018. The shortfall was primarily due to unfavourable weather, such as severe storms and temperature fluctuation. Notably, maple production in 2023 followed a record in 2022, which had a 59% increase over 2021. At the time of writing, the 2024 maple harvest appears promising.

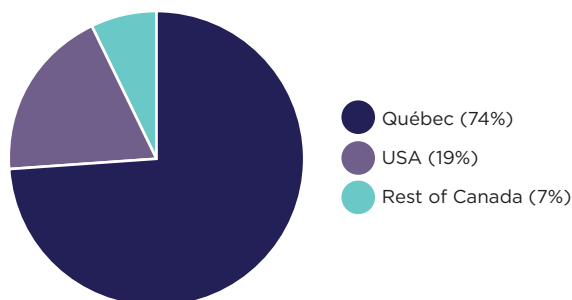
Below is a table of maple syrup production in millions of gallons since 2009.

Production of maple syrup products (millions of gallons)			
2009	9.078	2017	12.512
2010	7.274	2018	9.796
2011	8.551	2019	13.204
2012	7.855	2020	14.304
2013	10.053	2021	11.311
2014	9.484	2022	17.406
2015	8.908	2023	10.422
2016	12.160		

<https://www150.statcan.gc.ca/n1/daily-quotidien/231212/cg-d001-eng.htm>

The province of Quebec has the lion share of maple production with 91.6% in 2022, the latest data available. According to the QMSP, Quebec produced approximately 74% of the world's maple syrup supply in 2022.

Share of world production in 2022



Source: QMSP <https://ppaq.ca/en/sustainable-development/economic/>

The QMSP estimated that in 2022, the province of Quebec produced 211 million pounds of syrup (95 million kg) and 124 million pounds (56 million kg) in 2023. Assuming those projections are accurate, maple syrup production would represent 12,582 full-time equivalent jobs and contribute \$1.1 billion to Canada's GDP.²¹ It is also estimated that \$235 million in tax revenue would be generated for Quebec and Canada.



Maple syrup production by province (kilograms)

	2018	2019	2020	2021	2022	2022 % Share
Nova Scotia	330,495	420,630	336,504	216,324	F	N/A
New Brunswick	2,169,249	3,593,382	3,371,049	4,723,074	4,873,299	4.7%
Québec	53,564,226	72,306,297	79,438,980	60,252,243	95,843,550	91.6%
Ontario	2,794,185	3,016,518	2,806,203	2,776,158	3,545,310	3.4%
Canada	58,864,164	79,342,836	85,952,736	67,967,799	104,592,654	100.0%

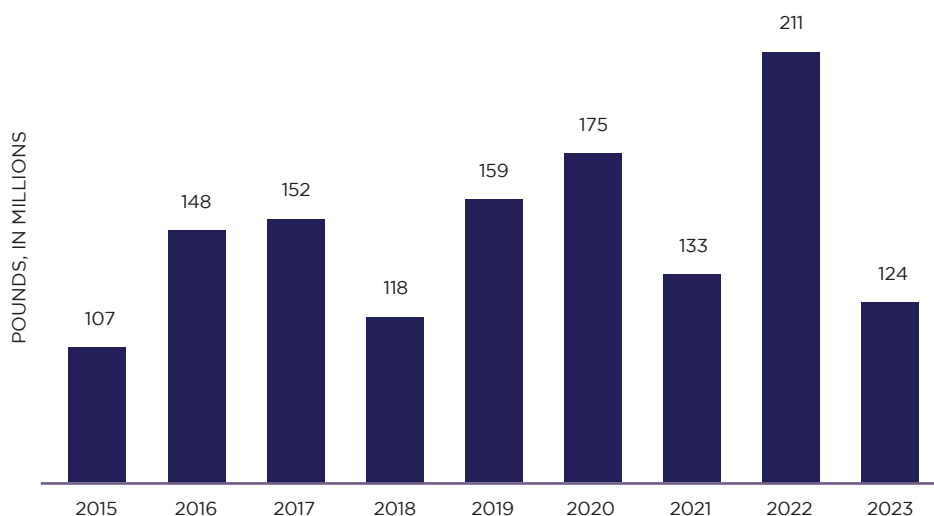
1. Maple products such as taffy, sugar and maple butter have been converted to syrup equivalent

F: Too unreliable to be published

N/A: Not applicable

Source: Statistics Canada. Table 32-10-0354-01 Production and value of maple products (x 1,000)

The table below shows Quebec's maple production from 2015 to 2023 and the yield per tap.



Yield (in pounds) per tap in Québec (2014-2022)

2015	2016	2017	2018	2019	2020	2021	2022	2023
2.53	3.47	3.45	2.52	3.43	3.59	2.75	4.26	2.43

Source: QMSP <https://ppaq.ca/en/sustainable-development/economic/>



EXPORTS

Canada supplies the majority of maple syrup to the international markets.

According to the QMSP, from 2011 to 2021, Canadian maple exports increased by 91%.²²

Further, according to the [Statistics Canada 2022 maple industry overview](#), in 2022, approximately 61.9% of the maple product exports went to the United States. Germany is the 2nd most popular destination, with 9.8% of exports, followed by France and the United Kingdom. 85% of Quebec's maple syrup is exported.

Canadian maple syrup production and exports, 2010-2022



Source: Natural Resources Canada <https://natural-resources.canada.ca/our-natural-resources/forests/state-canadas-forests-report/maple-syrup-production-and-climate-change-does-the-future-taste-sweet/24150>

Canadian maple syrup exports totalled 69.6 million kilograms (11,583 gallons) in 2022, a decrease of 5.1% from the 73.3 million kilograms exported in 2021. In terms of value, Canadian exports of maple products amounted to \$616 million in 2022, up 4.1% from 2021. Canadian maple products were exported to 72 countries worldwide in 2022.²³

According to [Statistics Canada](#), Canadian producers exported 7.7 million gallons of maple products in the first three quarters of 2023, an 8.7% decrease from the same period in 2022.



THE ECONOMICS

The basic principle of making maple syrup has not changed since ancient times: boil the sap. Many hobbyists' methods are rooted in tradition. Tap a few trees, install a bucket to catch the sap, and then boil it down to a syrup. However, the practice has evolved significantly for large operators with thousands of taps. You need a modern-day operation. There is a need for state-of-the-art equipment to collect and boil large volumes of sap efficiently. Plastic tubes attached to a vacuum pump replace buckets. A reverse osmosis machine separates the water from the sugar in sap and cuts boiling time, and boiling sap in an evaporator replaces boiling in a cast-iron pot over a fire pit.

In the maple syrup value chain, there are many players with different roles. Some lease the land, others collect the water but outsource the boiling process, while some focus exclusively on making maple syrup. Additionally, there are those who offer the full “sugar shack” experience, including hospitality services such as restaurants and entertainment. Some producers have a retail operation, while others create maple syrup goods sold in grocery stores or gift shops. However, delving into the intricacies of each role is beyond the scope of this article.

A producer aims to become more efficient by maximizing sap yield and minimizing costs. There are a few key performance indicators (KPIs) that drive the business, including sap yield per tap, maple syrup yield per tap, price per gallon/litre/lbs/kg, and cost per gallon/litre/lbs/kg.

Many factors affect the profitability of a producer. The profitability of a producer depends heavily on the yield of syrup. The yield of syrup depends on the quantity of sap and its sugar content (measured in Brix). A producer aims to reduce costs, and equipment greatly impacts the bottom line. The type of equipment used, including reverse osmosis systems and evaporators, can dramatically influence operating costs and efficiency. The health of the maple bush is important because it directly impacts the potential for maple syrup. And of course, the weather also plays a major role.

The most efficient producers embrace technology and innovation in their practices. There is a growing trend towards the ‘smart sugar bush,’ which involves real-time connectivity of equipment accessible via smartphones or computers. Constant monitoring and automation maximize productivity by providing real-time data on sap flow and automating the boiling process to ensure a high-quality product. Adopting technology also helps alleviate labour issues, reducing the number of people needed for operations.





REVENUES

A producer's revenue-generating assets are the trees. The goal is to maximize sap production and maple syrup yield. The more maple trees, the more taps. The healthier the trees, the more sap they generate. The more sap, and the sweeter it is (higher Brix level), the more maple syrup a maker can produce. Remembering that the industry is at the mercy of nature is also important. Regular fluctuations of freezing at night and thawing during the day ensure a good flow of sap. Producers carefully monitor sap flow and adjust tapping practices to maximize yield while ensuring the long-term health of their maple trees.

Efficient sap collection methods can improve overall sap yield. The sap collection process includes installing the collection system, which involves tapping trees with spouts and installing a tubing network and a vacuum system to enhance sap collection efficiency. The vacuum pump helps to draw sap from the trees more effectively, increasing the flow rate and overall sap yield.

There are non-maple-syrup related sources of revenue. These can include renting access to hunters and selling timber. A note on logging: once a tree has been tapped, the first eight feet lose value for saw logs. So, there is a trade-off between logging income and making maple.

COST

Boiling the saps off. That's where profit margins evaporate.

A producer is focused on minimizing the cost of production and optimizing the cost per unit (barrel, pound/kg, litre). Equipment plays a significant factor. A producer looks for performance, cost savings, simplicity, and time and energy savings. State-of-the-art equipment helps achieve these goals. The two main pieces of equipment that have a significant impact are the reverse osmosis system and the evaporator.

Evaporation is the most energy-intensive step. Reverse osmosis helps with this step by increasing the concentrate's final Brix, directly reducing the boil time. This has many impacts. Not only does a producer save time, but s/he also saves money since less energy (fuel oil, propane, wood, pellets, electricity) is used. Also, the time saved can be used to boil more sap.

Here is a table from maple equipment seller CDL that shows the cost per barrel using different fuel sources with a 30 Brix concentrate.

With a 30 Brix Concentrate

	Oil	Propane	Pellet	Wood	Wood Chips	Electricity
Cost \$/Barrel	\$41.99 CAD ¹	\$27.01 CAD ²	\$17.63 CAD ³	\$8.48 CAD ⁴	\$4.65 CAD ⁵	\$2.75 CAD ⁶
(34 imp. Gal, 40 US Gal.)	\$27.25 USD ¹	\$28.96 USD ²	\$12.96 USD ³	\$12.47 USD ⁴	\$2.73 USD ⁵	\$4.12 USD ⁶

1. Based on a price of \$1.60 CAD (\$1.06 USD) / litre of oil

2. Based on a price of \$0.70 CAD (\$0.77 USD) / litre

3. Based on a price of \$0.16 CAD (\$0.12 USD) / lbs of pellet

4. Based on a price of \$100 CAD (\$150 USD) / wood cord (24" x 4' x 8')

5. Based on a price of \$0.50 CAD (\$0.37 USD) pi³ of wood chips app.

6. Based on \$0.10 CAD (\$0.15 USD) kW energy cost

Source: CDL Magazine, Third Edition 2023, page 7

The guideline for being more efficient is straightforward. The higher the Brix, the sweeter the water is, the less boiling time it takes, and the lower the cost per barrel. A producer could obtain an advantage by upgrading to more modern and efficient equipment. S/he also gains efficiency by boiling larger batches. This could lower the producer's unit cost.



LABOUR

Like many industries, maple syrup producers are grappling with labour shortages. Like other agricultural sectors, the maple industry needs help in attracting workers, with the scale of the challenge increasing for larger producers.

Since maple syrup production is a short-term seasonal activity with irregular hours, it can be less appealing to job seekers, and the need for temporary workers is paramount. Consequently, larger producers are turning to foreign labour. Meanwhile, some producers attract workers from other industries during their off-seasons or less busy periods (e.g., landscaping, construction), as these workers may seek additional income opportunities.

Another strategy producers adopt to address the labour shortage is investing in high-tech equipment that requires less manual labour.

THE ENVIRONMENT AND CLIMATE CHANGE

Scientists are studying the impact of climate change and weather volatility on maple syrup production (and all food production, of course). Maple syrup production is closely linked to climate, with Mother Nature playing a crucial role. Climate change can easily disrupt the optimal weather conditions required for sap flow.

Weather dictates sap yields and affects when and how the sap flows. You are working with a narrow window of time, which requires optimal conditions for sap flow. You need below-freezing nights and above-freezing daytime temperatures. Sap flow occurs when daytime temperatures are above freezing (around 4-7°C) and nighttime temperatures drop below freezing (-4 to -1°C). Too warm, nothing happens. Too cold, nothing happens.

Ecologists and researchers are working closely with maple producers to study the effects of climate variability. Some observations have been made over decades. One notable change is that producers are beginning to tap their maple trees earlier in the year because too much warmth makes the maple trees bud earlier, signalling the end of the sugaring season.²⁴ There's also a general shift northward for optimal sap flow conditions and a decline in production in southern regions.

There are different reports, but some producers claim that there are fewer light-coloured syrups (the highest grade and best price, such as the golden grade syrup) today compared to decades ago. The quality of maple syrup is also being studied because changes in temperature and growing conditions can affect the tree's health and, by extension, the sugar content of the sap.

Maple producers are adopting. Maple producers can obtain the "green" label if they meet certain sustainability standards. For example, an accredited organic certification body must certify organic maple syrup. To be considered organic, the producers must follow sustainable practices across all aspects of their production, such as sustainable forestry practices, among other things.

Forest diversification is encouraged (versus monoculture, e.g. simply planting sugar maple). The healthiest forest contains a mix of species and provides a range of values, including wildlife habitat. This, by extension, enhances the ecosystem. Maple producers are also switching to cleaner, high-energy efficiency performance evaporators. Not only is your cost per barrel lower, it's also better for the environment.

One clear thing is that sustainable maple production requires a healthy maple bush. Overall, the maple syrup industry faces significant challenges due to climate change, but producers can mitigate some of these impacts with proactive adaptation and innovation.



VALUATION CONSIDERATIONS

Please note that this is a general outline. A more comprehensive discussion with a CBV will add depth and precision to the valuation process.

There are many reasons why maple producers need a valuation analysis and why a CBV is required. Considerations include:

- Sale, merger, or purchase of a business
- Financing
- Reorganization
- Estate/succession planning
- Shareholder disputes
- Tax-related issues
- Matrimonial and family law
- Quantification of economic losses

It is important to understand what exactly needs to be valued (shares, assets) and the valuation purpose. There are many issues to consider. As discussed, there are many players in the maple value chain. Despite maple syrup being a commodity, no two businesses are alike. Some simply produce maple syrup, while others run a retail business and a restaurant, which is highly dependent on tourism and consumer spending. Others are involved in bottling, packaging, and selling maple products. There is also a wide range of operation sizes, ranging from small family-owned local operations to large commercial producers.

There are three main approaches used to value businesses:

- The asset-based approach (or cost-based):
 - Evaluates the value of assets (land, equipment).
 - Useful for assessing liquidation value.
- The income approach:
 - Based on the present value of expected future earnings from the maple producer.
 - Consider cash flow, growth rates, and risk factors.
- The market approach:
 - Based on an analysis of similar transactions and businesses on the market

Each valuation approach includes several underlying methods. For example, under the income approach, a discounted cash flow analysis (DCF) calculates the present value of expected future cash flows. As CBVs are well aware, valuing a business is forward-looking and that future profits or cash flows are important factors in determining value. The approach and method a CBV applies depends on the specific context and facts of each valuation engagement.

It is essential to understand the primary value drivers. A key factor is the number of taps, which plays a significant role in determining value. A good deal is centred around the number of taps and trees you can potentially tap. This emphasis is logical since taps and trees are fundamental revenue-generating assets and serve as indicators of maple yield.

Additionally, maple syrup yield (lbs/tap) and the price obtained for syrup (price per pound, price per gallon) are critical value factors. Different qualities and grades of maple syrup command different prices. Operating expenses, particularly variable costs such as energy for boiling and labour, are major cost components that reflect operational efficiency.

Because of production volatility, a maple syrup producer can also be squeezed by fixed costs during a down production year. Fixed costs such as a mortgage or lease, sugar house, equipment repair or upgrade, and vehicles and insurance are more challenging to manage during bad production years as they do not decrease in line with revenue and can place a significant financial burden on maple producers.



Factors such as real estate quality, equipment condition, forest health, and quota holdings, if applicable, also contribute to the overall value assessment. As they increase in size, producers benefit from lower production costs. Large producers can leverage economies of scale, enabling them to produce more at a lower cost per unit, further positively impacting their value proposition. Another component contributing to economies of scale is buying sap from sap producers to achieve higher utilization of their existing equipment, thereby reducing fixed costs per unit produced.

The health of the maple bush and, by extension, the forestry sustainability practice are also factors to consider. A strong, healthy maple bush with many young trees to tap in the future will command a premium over one that is older, maturing, and declining.

The price of sugar shacks operates under a rule-of-thumb formula, which is expressed in \$ per number of taps. For example, if a sugar bush has 3000 taps and is sold for \$150,000, then the sugar bush has a value of \$50 per tap. This is a quick and dirty method to arrive at a number, but it has limitations. It is important to note that these rules are general guidelines and may not capture each business's full complexity or unique aspects.

The \$-per-tap approach, if used in isolation, can lead to overvaluation by buyers due to market-driven comparisons, similar to how real estate values are sometimes determined ("this house sold for X dollars, so mine must be worth X dollars"). This method has limitations in accurately assessing the revenue-generating capacity, operating expenses, and efficiency, as well as the quality of equipment (tubing, reverse osmosis system, evaporator) and infrastructure (such as the sugar shack). It also overlooks fluctuations in the cost of capital, such as changes in interest rates, since the rate of return investors seek can vary.

Furthermore, each sugar shack is unique, with distinct properties and operational risks that can vary significantly. Adjustments must be made to reflect the differences. Therefore, relying solely on a \$-per-tap approach overlooks these nuanced factors critical for a comprehensive and precise assessment of the business's value. This is why it is advisable to use multiple valuation methods to arrive at a more accurate valuation.

It is common to see sugar shack buyers paying above the fair market value. This can be attributed to emotional factors and a willingness to pay extra for the lifestyle associated with owning a sugar shack. It is reminiscent of what happens in the vineyard industry, where buyers are often driven by passion and lifestyle considerations rather than purely financial metrics.

There are also tax considerations. The seller wants to maximize the net after-tax cash, which could be a combination of the maximum sale price and the maximum deduction for capital gains allowed. It is essential to understand the status of the operations because running a maple sugar bush, in some cases, could be considered farming income.²⁵ Every business is unique and requires tailored tax planning.

CONCLUDING THOUGHTS

Maple syrup production has played a distinct role in Canadian history. Understanding its origins provides crucial insights into this unique industry's current state and future trajectory. The industry has many opportunities ahead in terms of production, growth, innovation, and international expansion. As demand for maple syrup continues to rise, these trends are expected to persist. However, the industry also faces increased volatility in production and is working to mitigate the effects of climate change.

Maple syrup producers operate in an industry that requires specialized knowledge for an accurate valuation. Consulting a valuation professional, such as a Chartered Business Valuator (CBV), is essential. A CBV's expertise ensures a more precise and comprehensive valuation by performing a detailed analysis that considers specific industry dynamics, market conditions, financial performance, and other relevant factors.



FURTHER READING AND LINKS

[Producteurs et Productrices Acéricoles du Québec \(PPAQ\)](#)

[Érable du Québec \(PPAQ\)](#)

[Maple Research Program \(PPAQ\)](#)

[MapleResearch.org](#)

[University of Vermont Proctor Maple Research Center](#)

[Cornell University Maple Program](#)

[Statistical Overview of the Canadian Maple Industry, 2022](#)

[International Maple Institute](#)

[Le Centre ACER](#)



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- 21 Maple Marketing and Research <https://ppaq.ca/en/our-organization/maple-marketing-research/>
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