



## **Economic impact of the maple syrup industry in New Brunswick**

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## **Acknowledgments**

Access to quality data is the greatest challenge in this type of analysis. For comparative purposes, we were interested in two sectors: maple syrup production and the hardwood industry. We needed to be able to assess the contribution of each and compare their respective marginal impact if additional resources were made available for either of these two sectors.

On behalf of the maple syrup industry, we would first like to thank the New Brunswick Maple Syrup Association and its Executive Director, Louise Poitras, for agreeing to support us in conducting a survey of the province's maple syrup producers. Without the results of this survey, it would have been impossible for us to fully understand the cost structure of this industry.

Our thanks also go to Mr. Chris Norfolk, Director of Forest Planning and Stewardship at the New Brunswick Department of Natural Resources and Energy Development, who provided us with data on the province's hardwood harvest, the distribution of this harvest by mill and maple syrup production on Crown land.

We remain solely responsible for any errors this report may contain.

Enjoy your reading.

## Executive Summary

- This study has two objectives. First, it wants to give an overview of the province's maple syrup industry and estimate its economic impact. Second, it compares the relative contribution of the maple syrup and hardwood industries when they receive an additional allocation of resources.

### New Brunswick's Maple Syrup Industry

- New Brunswick's maple syrup industry has grown rapidly since 2010. The number of taps increased by 86% to 3.5 million, syrup production increased by 162% to 811,000 gallons in 2022, and the value of production increased by 77% to \$33 million. In 2021, the provincial industry accounted for 6.5% of taps in the country, up from 4.3% in 2011.
- The structure of the industry has changed a lot as well. In 2011, 74.3% of producers had fewer than 10,000 taps and accounted for 9.4% of the province's taps. In 2021, these small-scale producers accounted for 60.6% of industry stakeholders and operated only 5.8% of taps. At the other end of the spectrum, very large companies, those with more than 50,000 taps, saw their number increase from 15 to 22 and their share of the province's taps increased from 52.6% to 54.4%.
- Provincial maple syrup production is concentrated in two economic regions: the North (Restigouche, Gloucester, and Northumberland) and the Northwest (Madawaska, Victoria, and Carleton) and this reality is increasing. In 2011, these two regions accounted for 56% of the province's producers and 92% of the taps. By 2021, these two percentages had increased to 67.5% and 97.7%, respectively.
- From 2010 to 2022, the maple syrup industry on Crown land continued to grow. The number of hectares leased by maple syrup producers increased from 9,239 to 14,078. The number of taps on Crown land increased from 1.9 million to 2.8 million. They now account for 77.5% of taps in the province. This production is mainly found in the Northern (69.9%) and Northwestern (29.4%) regions.

### Trends in the hardwood sector

- In 2010, 35.3% of the wood material harvested in the province came from hardwoods. This percentage decreased slightly in 2020 to 33.5%.
- In 2022, 3 M m<sup>3</sup> of woody material from hardwood trees was harvested. Most of this crop was delivered to processors in the province (84.6%), with the remainder exported (15.4%) mainly to Quebec. Imports amounted to 283.2 K m<sup>3</sup>.
- It is in the Northern Economic Region that 44.8% of this woody material is processed. This is followed by the Central (22.6%) and Southwestern (20.6%) regions. Mills in the Northwest process 12% of the hardwood harvested.

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- In 2022, most of this resource is absorbed by the pulp industry (79.9%). Due to its low quality, the harvested wood material generates little added value.

### **The Economic Impact of the Maple Syrup and Hardwood Industry**

- In 2022, the maple syrup sector was responsible for a total of more than 542 jobs (FTEs) in New Brunswick (an increase of 67% since 2010) and more than 622 in Canada. The total contribution to New Brunswick's GDP was over \$37 million (an increase of 112% since 2010) and over \$61 billion to Canada's GDP. Revenues for the Government of New Brunswick were \$3.6 million, an increase of 272% since 2010.
- In 2021, the hardwood sector generated more than 9,100 jobs (FTEs) in New Brunswick and contributed more than \$1.4 billion to New Brunswick's GDP. The sector contributed more than \$143 million in total revenues to the Government of New Brunswick and \$174 million to the Government of Canada.

### **Analysis of the comparative impact of an increase in resources in the maple syrup and hardwood sectors**

- The addition of 1000 hectares to the maple syrup sector will result in an economic impact of 26 jobs (FTEs) in New Brunswick, \$1.8 million to the province's GDP, \$200K in additional revenue for the Government of New Brunswick and approximately the same amount for the Government of Canada.
- The addition of 1000 hectares to the hardwood sector will generate 4 jobs (FTEs) annually in New Brunswick, add \$700K to the province's GDP, increase revenues for the Government of New Brunswick and the federal government by \$100K.

### **Major Challenges for the Provincial Maple Syrup Industry**

- These challenges can be structured around the following themes. The first is access to Crown land. Given that the latter account for 50% of the province's forest territory, the future of the maple syrup industry depends very much on access to this territory. There are two aspects of this leasehold policy that are of concern to maple syrup producers. The first is the limited number of hectares of maple grove available to them. The second is the lack of flexibility in government standards.
- The second challenge is climate change. These changes alter the production cycle by bringing forward the first pour and causing more and more periods of mild weather. Average temperatures are expected to rise by the end of the century. This increase will be accompanied by a reduction in the total amount of snow, more frequent floods, and droughts. It is expected that this will cause a decrease in the amount of sugar in the sap and affect the health of the trees. Maple syrup producers are aware of these changes. They will need information, financial and

technical support to adapt their industry. They will also have to act on their greenhouse gas emissions and the role that maple groves play in carbon capture.

- To remain competitive, maple syrup producers will have to continue to invest in new equipment to take advantage of technological developments and reduce the cost of production. The presence of an increasing number of large companies is an advantage. Because they have little influence on prices, maple syrup producers can increase their profit margins by controlling costs.
- The other dimension of competitiveness is product innovation. Several producers have demonstrated a strong capacity for innovation in the development of value-added products. This practice should be valued, encouraged, and supported. The support of the province and the federal government is needed at this level.
- Finally, like all other businesses, maple syrup producers face a more competitive labour market. The seasonality of the industry complicates matters. The industry will have to adjust its practices to ensure that it has access to the human resources necessary for its development.

## ***Economic impact of the maple syrup industry in New Brunswick***

### **1. Introduction**

Little is known about the evolution of the maple syrup industry in New Brunswick and its contribution to the economic development of its regions. The last analysis of this sector was carried out in 2012. At that time, the New Brunswick Department of Natural Resources commissioned an assessment of the economic impact of the hardwood and maple products sectors on the province's Crown lands. The mandate was given to Eco Ressources Consultants (2012) and covered the year 2010. For the maple syrup sector, the study concluded that New Brunswick would benefit from 228 full-time equivalent jobs and \$9.5 million in GDP.

Two factors explain the need to update this study. Firstly, by limiting the analysis to sugar bushes located on Crown land, the study gave a partial picture of the industry's contribution to the provincial economy. Secondly, since the study was published, the maple syrup industry has undergone significant change. The number and average size of companies have increased. The technology used has changed. The sector has become more professional. Efforts have been made to increase product processing. Innovations and product diversification have taken place.

The purpose of this study is twofold. First, it aims to provide a current picture of the industry, and to update estimates of the maple syrup sector's contribution to the province. Data for the year 2022 will be used to estimate the industry's provincial and regional impact. But since this industry competes to some extent with the hardwood industry for the use of a portion of the forest resource, an estimate of the hardwood industry's contribution will also be made. Once these two estimates have been made, and this is the second objective of the study, we want to compare the relative contribution of the two industries when an additional allocation of resources is made to them.

The first section of the study presents a portrait of the maple syrup industry and its transformation in recent years. The second part presents a similar analysis for the hardwood sector. In the third section, we estimate the contribution of each of these industries to the provincial economy, as well as their regional impact. We then analyze the relative impact of an additional allocation of identical resources to these two industries. In the final section, we identify the major challenges facing the maple syrup industry in the years ahead.

## 2. New Brunswick's maple syrup industry

Eco Ressources Consultants' 2012 portrait of the industry showed that producers operating on Crown land accounted for 41% of the province's maple syrup producers in 2010. They accounted for 80% of the province's maple production area, 77% of taps (1.94 million taps) and 80% of production (approximately 245,000 gallons of syrup).

From 2010 to 2022, the industry picture has evolved rapidly. According to Statistics Canada data (Table 32-10-0354-01), maple syrup production in New Brunswick rose from 309,000 gallons in 2010 to 811,000 in 2022, representing growth of 162%. In terms of value, production rose over the same period from \$18.6 million to \$33 million (+77%).

Let's take a closer look at trends in this sector since 2010. To get a relevant relative picture, we compare New Brunswick's trends with those of the country and of Quebec, the world's leading maple syrup producer. Table 1 provides data on changes in the number of producers and the total and average number of taps. Since these data come from Statistics Canada's Censuses of Agriculture, they are available for the years 2011, 2016 and 2021.

Table 1. **Number of producers and taps, Canada, Quebec, and New Brunswick, 2011, 2016 and 2021**

	Year and variation	Number of producers	Number of taps	Average number of taps
<b>Canada</b>	2011	10,847	44,440,024	4,097
	2016	11,468	46,995,360	4,098
	2021	11,541	54,647,591	4,735
	<b>Var. 2011 - 2021</b>	<b>6.4%</b>	<b>23.0%</b>	<b>15.6%</b>
<b>Quebec</b>	2011	7,639	40,632,512	5,319
	2016	7,863	42,529,033	5,409
	2021	8,653	48,672,648	5,625
	<b>Var. 2011 - 2021</b>	<b>13.3%</b>	<b>19.8%</b>	<b>5.8%</b>
<b>New Brunswick</b>	2011	191	1,896,773	9,931
	2016	212	2,285,785	10,782
	2021	188	3,523,948	18,744
	<b>Var. 2011 - 2021</b>	<b>-1.6%</b>	<b>85.8%</b>	<b>88.7%</b>

**Source:** Statistics Canada, Census of Agriculture, table 32-10-0362-01.

From 2011 to 2021, these basic figures for the Canadian and Quebec maple syrup industries have all increased, albeit moderately. In Canada, the number of producers rose from 10,847 to 11,541, corresponding to growth of 6.4%. The number of taps increased by almost 20%, and the average number of taps by 5.8%. As Quebec is the world's leading producer of maple syrup, the industry did not experience drastic



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changes during this period either. The number of producers grew by 13.3%, the number of taps by 19.8% and the average number of taps by 5.8%. These figures correspond to those of a mature industry.

In New Brunswick, the picture is very different. Firstly, the number of producers has fallen from 191 in 2011 to 188 in 2022. It had even reached 212 in 2016. Despite a 1.6% drop in the number of producers from 2011 to 2021, the number of taps increased by 85.8% and the average number of taps by 88.7%. In 2011, New Brunswick accounted for 4.3% of the country's taps. By 2021, its place in the Canadian industry had increased to 6.5%. As we'll see later, this is largely due to the development of the industry on Crown land.

The other two key indicators are production and production value. Table 2 shows the evolution of these two indicators from 2010 to 2022.

Table 2. **Production (in thousands of gallons) and production value (in thousands of \$), Canada, Quebec and New Brunswick, 2010, 2016 and 2022**

	Year and variation	Production (in thousands of gallons)	Value <sup>1</sup> (in thousands of \$)
<b>Canada</b>	2010	7,274	291,061
	2016	12,160	484,109
	2022	17,406	697,154
	<b>Change 2010 - 2022</b>	<b>139.3%</b>	<b>139.5%</b>
<b>Quebec</b>	2010	6,649	251,682
	2016	11,185	435,600
	2022	15,950	636,000
	<b>Change 2010 - 2022</b>	<b>139.9%</b>	<b>152.7%</b>
<b>New Brunswick</b>	2010	309	18,620
	2016	528	22,023
	2022	811	33,005
	<b>Change 2010 - 2022</b>	<b>162.5%</b>	<b>77.3%</b>
1. In 2022, the value of Canadian production is estimated at the 2021 average price.			
Source: Statistics Canada, table 32-10-0354-01.			

The data in this table show that the output and market value of this production has increased much faster than the number of taps. This result can be explained by technological development. In Canada, from 2010 to 2022, production and its value increased by just over 139%. In Quebec, production has increased by a similar percentage (139.9%), and the value of production by 152.7%. In New Brunswick, not surprisingly, production grew faster than in the rest of Canada and Quebec, by 162.5%.

On the value side, the result is surprising. The increase was only 77.3%. This smaller increase is attributable to a sharp drop in the average selling price from \$60.26 in 2010 to \$40.70 in 2022. Larger producers are selling more of their production in bulk.

Since production techniques vary according to sugar bush size, it is important to verify the evolution of production according to the number of taps per operator. Table 3 presents data for the years 2011 and 2021. It presents the number of producers and the number of taps according to four categories of companies: those with less than 10,000 taps, 10,000 to 19,999 taps, 20,000 to 49,999 taps and more than 50,000 taps.

Table 3. **Number of producers and total number of taps distributed by number of taps, New Brunswick, 2011 and 2021**

	2011			2021		
	Number of producers	Number of taps	%	Number of producers	Number of taps	%
Less than 10,000 taps	142	179,203	9.4%	114	204,977	5.8%
From 10,000 to 19,999	19	247,400	13.0%	19	252,333	7.2%
From 20,000 to 49,999	15	472,149	24.9%	33	1,147,881	32.6%
50,000 and over	15	998,021	52.6%	22	1,915,837	54.4%
<b>Total</b>	<b>191</b>	<b>1,896,773</b>	<b>100.0%</b>	<b>188</b>	<b>3,521,028</b>	<b>100.0%</b>

**Source:** Statistics Canada, 2011 and 2021 Censuses of Agriculture, custom compilation.

In 2011, 74.3% of producers harvested fewer than 10,000 taps and accounted for 9.4% of the province's taps. By 2021, these small producers accounted for 60.6% of industry players, and only 5.8% of taps. At the other end of the spectrum, the very large companies, those with over 50,000 taps, saw their number increase from 15 to 22, and their share of the province's taps rise from 52.6% to 54.4%.

The category that grew the most during the decade was that of operators with between 20,000 and 49,999 taps. Their number increased from 15 to 33, and their share of provincial taps rose from 24.9% to 32.6%.

Overall, the two categories of small producers (fewer than 20,000 taps) have seen their relative weight diminish both in terms of the number of farms (from 161 in 2011 to 133 in 2021) and the share of provincial taps harvested (from 22.4% in 2011 to 13% in 2021).

Maple syrup production is rooted in the local environment. Its distribution in the province follows the maple stands. As the data in Table 4 show, production is concentrated in the northern part of the province. This information comes from a customized compilation of Statistics Canada agricultural census data for the years 2011 and 2021. The data are presented using Statistics Canada's economic region boundaries:

- Northwest (Madawaska, Victoria, Carleton);

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- North (Restigouche, Gloucester, Northumberland);
- Southeast (Kent, Westmorland, Albert);
- Southwest (Saint John, Charlotte, Kings);
- Center (York, Sunbury, Queens).

Given the small number of producers in the last three regions, the data has been grouped under "Other regions".

Table 4. **Regional distribution of maple syrup production in New Brunswick, 2011 and 2021**

	2011			2021		
	Number of producers	Number of taps	As a % of provincial total	Number of producers	Number of taps	As a % of provincial total
<b>Northwest</b>	<b>48</b>	<b>532,719</b>	<b>28.1%</b>	<b>60</b>	<b>1,232,365</b>	<b>35.0%</b>
Less than 10,000 taps	34	70,260		34	93,506	
From 10,000 to 19,999	6	77,303		10	141,693	
From 20,000 to 49,999	6	224,403		9	319,751	
50,000 and over	2	160,754		7	677,415	
<b>North</b>	<b>59</b>	<b>1,249,685</b>	<b>65.9%</b>	<b>67</b>	<b>2,207,168</b>	<b>62.7%</b>
Less than 10,000 taps	28	23,291		22	61,202	
From 10,000 to 19,999	10	127,675		6	83,500	
From 20,000 to 49,999	8	247,744		24	822,629	
50,000 and over	13	850,975		15	1,239,837	
<b>Other regions</b>	<b>84</b>	<b>114,369</b>	<b>6.0%</b>	<b>61</b>	<b>81,495</b>	<b>2.3%</b>
Less than 10,000 taps	80	57,986		58	52,312	
From 10,000 to 19,999	3	34,923		3	29,183	
From 20,000 to 49,999	1	21,460		0	0	
50,000 and over	0	0		0	0	
<b>Province</b>	<b>191</b>	<b>1,896,773</b>	<b>100.0%</b>	<b>188</b>	<b>3,521,028</b>	<b>100.0%</b>
Less than 10,000 taps	142	179,203		114	204,977	
From 10,000 to 19,999	19	247,400		19	252,333	
From 20,000 to 49,999	15	472,149		33	1,147,881	
50,000 and over	15	998,021		22	1,915,837	
Note: Some data were confidential under the provisions of the Statistics Act. To complete the table, we have applied the provincial average to the missing data, weighted it to respect the region's total.						
Source: Statistics Canada, 2011 and 2021 Censuses of Agriculture, custom compilation.						

In 2011, two regions shared 56% of producers and 92% of taps in the province. The most important region is obviously the North, with 65.9% of taps. Thirteen of the 15 producers with more than 50,000 taps were operating in this region. In the other regions, very small

maple syrup companies (fewer than 10,000 taps) were the rule, accounting for 95.2% of companies.

From 2011 to 2021, production declined in the south of the province. The number of operators fell from 84 to 61 and the number of taps from 114 K to 81 K. Growth was fastest in the Northwest, thanks to an increase in the number of large and very large producers. The share of provincial taps in this region rose from 28.1% to 35% during this period.

In the North, the number of large and very large farms also increased, from 21 to 39. However, the share of tapholes in this region fell from 65.9% to 62.7%.

We alluded earlier to the contribution of sugar bushes on Crown land in explaining the strong growth in production in New Brunswick over the past decade. Table 5 provides an overview of the contribution of these sugar bushes.

Table 5. **Area and number of notches, Crown land, 2022**

	Surface (in hectare)	Number of taps <sup>1</sup>	%
Northwest	4 143.4	803,824	29.4%
North	9 836.5	1,908,276	69.9%
Southeast	82.2	15,952	0.6%
Southwest	16.2	3,143	0.1%
Center	0.0	0	0.0%
<b>Total</b>	<b>14 078.3</b>	<b>2,731,194</b>	<b>100.0%</b>
1. To estimate the number of taps, we used the results of our survey of producers on the number of taps per hectare harvested.			
<b>Source:</b> New Brunswick, Natural Resources and Energy Development and authors' estimates.			

By 2022, 14,078.3 hectares of Crown land had been leased by maple syrup producers. These lands enabled the production of 2.7 million taps, representing 77.5% of the province's taps.

Production on Crown land is concentrated in the North. It accounts for 69.9% of taps. Almost all this production is in the Restigouche region.

The Northwest ranks second, with 29.4% of taps. In this region, land leasing is present in Carleton (466 K taps) and Madawaska (260 K taps) counties.

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### 3. Trends in the hardwood sector

Hardwood harvesting and processing play an important role in New Brunswick's forest economy. Table 6 presents data on the origin of the net merchant volume of roundwood harvested from private and provincial Crown land in 2010 and 2020. In 2010, 35.3% of wood harvested in the province came from hardwoods. By 2020, this percentage had decreased slightly to 33.5%.

Table 6. **Net merchant volume of roundwood harvested in m<sup>3</sup> by source, 2010 and 2020**

	2010		2020	
	Volume (m <sup>3</sup> )	%	Volume (m <sup>3</sup> )	%
<b>Private land</b>				
Hardwood	1,600,349		1,065,599	
Softwood	2,345,972		2,664,923	
<b>Provincial lands</b>				
Hardwood	1,650,361		2,067,262	
Softwood	3,621,165		3,543,403	
<b>Total</b>				
Hardwood	3,250,710	35.3%	3,132,861	33.5%
Softwood	5,967,137	64.7%	6,208,326	66.5%
<b>Total</b>	<b>9,217,847</b>	<b>100.0%</b>	<b>9,341,187</b>	<b>100.0%</b>
<b>Source:</b> Canadian Council of Forest Ministers, National Forestry Database, <a href="http://nfdp.ccfm.org/fr/data/harvest.php">http://nfdp.ccfm.org/fr/data/harvest.php</a> .				

In 2022, according to data from the Department of Natural Resources and Energy Development (DNRED), 3 M m<sup>3</sup> of hardwood timber was harvested. Most of this harvest was delivered to processors in the province (84.6%), with the remainder exported (15.4%), mainly to Quebec. In return, 283.2 K m<sup>3</sup> were imported.

The processing plants that received the hardwood harvest are not evenly distributed throughout the province. Table 7 shows the distribution of wood by region, based on mill location.

Table 7. **Regional distribution of hardwood volume harvested in 2022**

Economic regions	Volume (m <sup>3</sup> )	%
Northwest (Madawaska, Victoria, Carleton)	305,817	12.0%
North (Restigouche, Gloucester, Northumberland)	1,137,498	44.8%
Southeast (Kent, Westmorland, Albert)	528	0.0%
Southwest (Saint John, Charlotte, Kings)	524,207	20.6%
Central (York, Sunbury, Queens)	573,161	22.6%
<b>Total</b>	<b>2,541,212</b>	<b>100.0%</b>
<b>Source:</b> New Brunswick, Natural Resources and Energy Development.		

Primary processing of this resource is largely carried out in the North, which accounts for 44.8% of this wood material. This is followed by the Centre (22.6%) and Southwest (20.6%) regions. Mills in the Northwest process 12% of harvested hardwoods. Once this initial processing has been completed, the product may go directly to market or to another New Brunswick mill for secondary processing, or it may be exported elsewhere in Canada or the world. For example, pulp from primary processing may be used in a printing or sanitary paper mill in New Brunswick or exported to another country for use in tissue manufacture.

However, this industry is faced with poor quality harvested stems<sup>1</sup>. Deloitte (2020) points out that "around 83.2% of hardwoods are consumed by pulp mills". For this reason, the harvested wood material generates little added value. The remainder of the processing industry is concentrated in sectors such as transport pallet manufacturing, short planking to produce hardwood flooring or cabinet and furniture components, and heating pellets. It is in this latter sector that recent investments have been made. Pellet plants have been built in the north and northwest of the province.

In 2022, according to data obtained from the Department of Natural Resources and Energy Development (DNRED), 20.1% of the hardwood material used in the province went to the wood industry, and 79.9% to the paper industry.

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<sup>1</sup> An analysis of stem quality was carried out by Swift *et al.* (2013, p. 17-19). The Northern Hardwoods Research Institute (2016) has also developed a classification system for New Brunswick stems.

### **4. The economic impact of the maple syrup and hardwood industries**

This section presents the economic impact of the maple syrup and hardwood industries in New Brunswick. Data for the maple syrup sector were obtained from a survey of industry members. Data for the hardwood sector was obtained from Statistics Canada. Data for the maple syrup sector are for the year 2022, while for the hardwood sector, the most recent data available were for 2021. We also present the results for the maple syrup sector found in the Eco Ressources study (2012). These data, for 2010, are comparable with those for 2022 once the results have been extrapolated to the entire province<sup>2</sup>. However, in 2010, the data were presented only on a provincial, not regional, basis.

An input-output model was used to quantify the total and detailed economic impact with relative precision. The principle of the input-output model is that it "essentially follows the itinerary of money spent by the sector". For example, employees will spend their wages at the grocery, convenience store or hardware store. In turn, this spending will have a result. The employees of these businesses will spend their income, pay taxes, etc. The input-output model considers the various facets of the economy, with the special feature of being based on the inputs (purchases) and outputs (production) of the various major sectors of the economy.

Results are presented for three variables. First, we present data on job creation, measured in full-time equivalents. A full-time equivalent position corresponds to 52 weeks of full-time work. It is therefore not a measure of the number of individuals, but of a quantity of work. The second variable is gross domestic product (GDP). GDP measures the value of production, estimated in terms of value added, on the territory in question. Finally, we present government revenues, for both the Government of New Brunswick and the Government of Canada.

Table 8 shows the impact of the maple syrup sector in terms of employment. The two regions with the greatest impact are the north and northwest, with 211 and 125 jobs (FTEs) respectively. The total impact of the sector for the province is over 540 jobs (FTEs), and over 620 jobs (FTEs) for the country. The sector has seen a province-wide increase in employment of 67% between 2010 and 2022.

The hardwood sector (Table 9) has a significant economic impact in the north, Southwest and Northwest of the province. The number of indirect and induced jobs (FTEs) is particularly significant, reflecting the structure of the sector, which uses many contract workers rather than employees. In New Brunswick, the total impact of the sector in 2021 was over 2,000 direct jobs (FTEs) and over 9,000 total jobs (FTEs).

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<sup>2</sup> It should be remembered that the Eco Ressources Consultants study (2012) focused specifically on Crown land.

Table 8. **Economic impact: employment (full-time equivalents), maple syrup industry, 2010 and 2022, New Brunswick (region and province), other provinces and Canada**

	2010			2022		
	Direct	Indirect and induced	Total	Direct	Indirect and induced	Total
Northwest (Madawaska, Victoria, Carleton)				125.0	31.8	156.8
North (Restigouche, Gloucester, Northumberland)				211.0	40.9	251.9
South-East (Kent, Westmorland, Albert)				18.0	22.5	40.5
Southwest (Saint John, Charlotte, Kings)				40.0	16.6	56.6
Central (York, Sunbury, Queens)				26.0	11.2	37.2
New Brunswick - Total	201	59	260	420.0	122.9	542.9
Rest of Canada				0.0	79.6	79.6
Canada - Total	201	129	330	420.0	202.6	622.6

Table 9. **Economic impact: employment (full-time equivalents), hardwood industry, 2021, New Brunswick (region and province), other provinces and Canada**

	2021		
	Direct	Indirect and induced	Total
Northwest (Madawaska, Victoria, Carleton)	244.0	1,253.3	1,497.3
North (Restigouche, Gloucester, Northumberland)	908.0	2,292.4	3,200.4
South-East (Kent, Westmorland, Albert)	0.5	507.2	507.7
Southwest (Saint John, Charlotte, Kings)	418.0	2,191.7	2,609.7
Central (York, Sunbury, Queens)	457.0	855.5	1,312.5
New Brunswick - Total	2,027.5	7,100.2	9,127.2
Rest of Canada	0.0	4,147.6	4,147.6
Canada - Total	2027.5	11,247.7	13,275.2

The geographical distribution of the impact on gross domestic product (GDP) is no different from that for employment (Tables 10 and 11). The maple syrup sector contributes nearly \$38 million to the province's GDP, i.e. \$21 million in direct impact and \$16.7 million in indirect and induced impact. This represents an increase of 112% between 2010 and 2022. The difference between growth in employment and growth in contribution to GDP reflects an increase in capitalization and, by extension, in the sector's productivity.



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The hardwood sector's contribution to provincial GDP is over \$1.4 billion, again with a significant contribution from indirect and induced impacts, reflecting the structure of this sector.

Table 10. **Economic impact: gross domestic product, maple syrup industry, 2010 and 2022, New Brunswick (region and province), other provinces and Canada (\$ millions)**

	2010			2022		
	Direct	Indirect and induced	Total	Direct	Indirect and induced	Total
Northwest (Madawaska, Victoria, Carleton)				6.6\$	4.1\$	10.7\$
North (Restigouche, Gloucester, Northumberland)				11.2\$	5.7\$	16.9\$
South-East (Kent, Westmorland, Albert)				0.9\$	3.1\$	4.0\$
Southwest (Saint John, Charlotte, Kings)				1.0\$	2.4\$	3.4\$
Central (York, Sunbury, Queens)				1.3\$	1.4\$	2.7\$
New Brunswick - Total	9.5\$	4.8\$	14.3\$	21.0\$	16.7\$	37.7\$
Rest of Canada				0.0\$	13.6\$	13.6\$
Canada - Total	9.5\$	11.4\$	20.9\$	21.0\$	30.3\$	61.3\$

Table 11. **Economic impact: gross domestic product, hardwood industry, 2021, New Brunswick (region and province), other provinces and Canada (\$ million)**

	2021		
	Direct	Indirect and induced	Total
Northwest (Madawaska, Victoria, Carleton)	55.2\$	160.4\$	215.6\$
North (Restigouche, Gloucester, Northumberland)	205.5\$	313.5\$	519.0\$
South-East (Kent, Westmorland, Albert)	0.1\$	62.1\$	62.1\$
Southwest (Saint John, Charlotte, Kings)	94.7\$	305.6\$	400.3\$
Central (York, Sunbury, Queens)	103.5\$	111.0\$	214.6\$
New Brunswick - Total	459.1\$	952.5\$	1,411.5\$
Rest of Canada	0.0\$	683.1\$	683.1\$
Canada - Total	459.1\$	2,094.7\$	2,094.7\$

New Brunswick government revenues from maple syrup operations totalled \$3.6 million (Table 12). This represents a 272% increase over 2010. For the federal government, revenues were \$4.1 million. In this case, the increase was 173%.

For the hardwood sector, revenues for the New Brunswick government were \$143.5 million, and \$174 million for the federal government (Table 13).

Table 12: **Economic impact: government revenues - New Brunswick and Canada, maple syrup industry, 2010 and 2022 (millions of dollars)**

	2010	2022
Government of New Brunswick	0.9\$	3.6\$
Government of Canada	1.5\$	4.1\$

Table 13. **Economic impact: government revenues - New Brunswick and Canada, hardwood industry, 2021 (millions of dollars)**

	2021
Government of New Brunswick	143.5\$
Government of Canada	174.0\$

## **Economic impact of the maple syrup industry in New Brunswick**

### **5. Analysis of the comparative impact of increased resources in the maple syrup and hardwood sectors**

This section presents the potential impact of allocating an additional 1,000 hectares to the maple and hardwood sectors. To enable comparison with 2010 estimates, we have used a method identical to that of Eco Ressources Consultants (2012). In the maple syrup sector, we assume that these additional hectares will enable an annual increase in the number of taps of 210,000, i.e. an average of 210 taps per hectare. This would increase maple syrup production by 472,500 lb. In the hardwood industry, we assume a selective cut of 35% every 20 years. This selective cutting will add an average annual harvest of 2,360 m<sup>3</sup> of woody material.

In Tables 14 and 15, we can see that the direct contribution in terms of job creation would be 20 jobs (FTE) for the maple syrup sector and 1 job (FTE) for the hardwood sector. The total impact at provincial level would be 26 and 4 jobs (FTE) respectively.

Table 14. **Economic impact of obtaining an additional 1000 hectares: employment (full-time equivalents), maple syrup industry, New Brunswick, other provinces, and Canada**

	Direct	Indirect and induced	Total
New Brunswick - Total	20.0	6.0	26.0
Rest of Canada	0.0	2.8	2.8
Canada - Total	20.0	28.8	28.8

Table 15. **Economic impact of obtaining an additional 1000 hectares: employment (full-time equivalents), hardwood industry, New Brunswick, other provinces, and Canada**

	Direct	Indirect and induced	Total
New Brunswick - Total	0.9	3.2	4.1
Rest of Canada	0.0	1.8	1.8
Canada - Total	0.9	5.0	5.9

The additional contribution to the province's GDP is shown in Tables 16 and 17. For the maple syrup sector, the total addition to the province's GDP would be \$1.8 million, while it would be \$700,000 for the hardwood sector.

For government revenues resulting from an increase of 1,000 hectares in the maple syrup sector, the increase for the provincial government would be approximately \$200,000. A similar amount would be collected by the federal government (Table 18). For the hardwood sector, the amounts would be \$100K for both the New Brunswick government and the federal government.

Table 16: **Economic impact of obtaining an additional 1000 hectares: gross domestic product, maple syrup industry, New Brunswick, other provinces, and Canada**

	Direct	Indirect and induced	Total
New Brunswick - Total	1.0\$	0.8\$	1.8\$
Rest of Canada	0.0\$	0.7\$	0.7\$
Canada - Total	1.0\$	1.5\$	2.5\$

Table 17. **Economic impact of obtaining an additional 1000 hectares: gross domestic product, hardwood industry, New Brunswick, other provinces, and Canada**

	Direct	Indirect and induced	Total
New Brunswick - Total	0.2 \$	0.4 \$	0.6 \$
Rest of Canada	0.0 \$	0.3 \$	0.3 \$
Canada - Total	0.2 \$	0.7 \$	0.9 \$

Table 18. **Economic impact of obtaining an additional 1000 hectares: government revenues - New Brunswick and Canada, maple syrup industry, 2021 (millions of dollars)**

Government of New Brunswick	0.2\$
Government of Canada	0.2\$

Table 19. **Economic impact of obtaining an additional 1000 hectares: government revenues - New Brunswick and Canada, hardwood industry, 2021 (millions of dollars)**

Government of New Brunswick	0.1 \$
Government of Canada	0.1 \$

### **6. Major challenges facing the provincial maple syrup industry**

This section looks at the major challenges facing the New Brunswick maple syrup industry. Some of these challenges are shared with other Canadian producers. We focus on six elements.

#### *a. Access to Crown land*

In New Brunswick, half the forest land is owned by the province, 18% is private industrial freehold land and 30% is private woodlots. Crown land thus offers significant development potential for the maple syrup industry. This reality has been recognized by the province. It has progressively allocated maple syrup leases on Crown land to the maple syrup industry<sup>3</sup>. In 2010, 9,239 hectares were in use (Eco Ressources Consultants, 2012, 4). An additional block of 4,400 hectares was allocated in 2015 and a final block of 5,000 hectares in July 2023 (New Brunswick. AAP and DNRED, 2023).

The lease signed by the producer is usually for ten years, renewable for additional five-year periods. To stimulate processing, the cost is lower if the resource is used for value-added products than for bulk syrup sales.

From 2010 to 2022, the number of taps on Crown land rose from 1,940,244 to 2,731,194<sup>4</sup>, an increase of 40.8%. According to our estimates, the increase in production on Crown land would account for 48.7% of the total increase in production in New Brunswick.

Maple syrup producers are concerned about two aspects of this leasing policy. The first is the limited number of hectares of sugar bush available to them. The second is the inflexibility of government standards. For example, the 2023 announcement stipulated that new developments were not to take place in newly protected areas. And yet, maple syrup production allows us to maintain existing maple groves. Producers felt that this rule was inconsistent. The government has since reviewed this rule (Radio Canada, 2024).

#### *b. Climate change*

Mild spells during the sugaring season pose a particular challenge for maple syrup producers. The 2021 season was a good illustration of this reality. Conversely, the 2022 season was exceptional for the quality of the weather and the size of the harvest. One thing is certain: climate change is altering the production cycle, bringing the first run

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<sup>3</sup> The province has developed a "Web map of maple sugar productivity". This interactive map is available at <https://daaf-maap.maps.arcgis.com/apps/webappviewer/index.html?id=04faf278f2f142afb4cc63f184e83fd&locale=fr>.

<sup>4</sup> The data for 2010 comes from the Eco Ressources Consultants report (2012, p. 4). The data on the number of hectares in 2022 comes from the Department of Natural Resources and Energy Development (DNRED). To estimate the number of taps, we used the results of our survey of producers on the number of taps per hectare harvested.

earlier and causing more and more periods of thaw. An increase in average temperatures is predicted between now and the end of the century. This rise will be accompanied by a reduction in the total amount of snow, and more frequent floods and droughts (Rademacher, 2023).

Two major impacts of climate change can be expected on maple groves: a drop in the amount of sugar in the sap and its impact on tree health. These impacts will vary from region to region, depending on the extent of warming observed. They will be less severe in the north of the province than in the south.

As the results of Legault's (2018) survey of 354 Canadian (244) and U.S. (110) maple syrup producers from all maple syrup-producing provinces and states show, producers are aware of the impact of climate change on their industry. Respondents gave their opinions on the adaptation measures to be implemented. The following options were favoured: advancing the tapping date, forest management, intensive sanitary practices and selecting maples better adapted to future climatic conditions<sup>5</sup> (Legault, 2018, p. 20-29). As for constraints to adaptation, Canadian respondents point to a lack of information, financial resources, and technical support (Legault, 2018, p. 30).

The other dimension of climate change is the role that maple groves can play in capturing carbon<sup>6</sup> (Harvey et al., 2023) and reducing greenhouse gas emissions (Higounet, 2020, p. 48-49). It would be important for the province's maple syrup producers to develop a common objective in this regard.

### c. *Technological development and production costs*

The Canadian maple syrup industry is dominated by Quebec, which controls 91.6% of Canadian production and 73.9% of world production (Producteurs et productrices acéricoles du Québec, 2023b). In Quebec, syrup prices are negotiated between the Producteurs et productrices acéricoles du Québec (PPAQ) and the Conseil de l'industrie de l'érable, which represents the buyers covered by the Quebec maple syrup producers' joint plan. The most recent agreement covers the 2023 and 2024 marketing years (Producteurs et productrices acéricoles du Québec, 2023a, p. 7-11). It sets minimum prices for six product categories based on the degree of light transmission, the premium for organic designation, grading fees, and more.

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<sup>5</sup> One example is the gradual replacement of sugar maple by red maple, which is more adaptable (Harvey et al., 2023). It should be noted that the use of red maple sap for maple syrup production has already been launched in New Brunswick, and that the tapping potential of red maples is being considered in the evaluation of new production sites on Crown land.

<sup>6</sup> The contribution of the Canadian forestry industry to carbon capture is currently the subject of debate. Several researchers conclude that this industry underestimates its greenhouse gas emissions (Bysouth et al., 2024 and Shingler, 2024).

## ***Economic impact of the maple syrup industry in New Brunswick***

As well as being dominant in production, Quebec is also dominant in processing and technology. New Brunswick producers are therefore influenced by the Quebec experience, in terms of prices, practices and technology.

If producers have little influence on the price and thus the revenue they earn from their production, improving profit margins must involve tight control of production costs. The presence of many very large companies, with greater financial capacity, is an advantage for New Brunswick in this respect.

### *d. Product innovation*

If we want to increase the economic impact of the maple syrup industry, we need to make more value-added products. Clearly, selling bulk syrup does not have the same impact as selling secondary and tertiary products. As mentioned above, the province has set the lease price for Crown land concessions to stimulate processing efforts.

Several interesting innovations have appeared on the market over the last ten years. A tour of the websites of producers who sell value-added products at retail reveals the dynamism of the industry in the province: new varieties of candy, granulated sugar for direct consumption or industrial processing, syrup infused with different flavors, maple water, and more.

It is these efforts that will differentiate New Brunswick's production for international customers.

### *e. Human resources*

This challenge is not specific to the maple syrup industry but is present in all industries. What is specific to the maple syrup sector is its seasonal nature. In a labor market where the workforce is limited, the various sectors are in direct competition to attract workers. In this context, the working conditions an industry can offer will influence its ability to attract more workers.

Our survey of maple syrup producers showed that the average hourly wage in the industry was \$22.70. We have no information on other aspects of working conditions. The industry will have to adjust its practices to have access to the human resources needed for its development.

If we want to ensure access to a quality workforce over the long term, training is a central element of this issue. The New Brunswick Maple Syrup Producers Association is currently working with the New Brunswick Community College to meet this need<sup>7</sup>.

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<sup>7</sup> An overview of training courses offered in Quebec is available at <https://emplois.ca.indeed.com/conseils-carriere/trouver-un-emploi/guide-formation-acericulture>.

*f. Government support for industry development*

The province made maple syrup production one of the elements of its economic development strategy in 2017. Two government departments are involved in supporting the industry: Agriculture, Aquaculture and Fisheries, and Natural Resources and Energy Development. In addition, the Regional Development Corporation (RDC) provides financial support for the development of maple syrup production, processing, and marketing projects.

At the federal level, the Atlantic Canada Opportunities Agency (ACOA) is involved in supporting industry development. Another major federal contribution is the Advance Payments Program (APP), which offers agricultural producers access to low-cost cash advances through loan guarantees<sup>8</sup>. The limit for this program is \$1 million. The federal government pays interest on the first \$100,000 and offers preferential interest on the remainder of the advance. Since maple syrup producers are not eligible for crop insurance in New Brunswick, the APP offers an alternative. The New Brunswick Maple Syrup Producers Association acts as the delivery agent<sup>9</sup> for this program.

If we want to increase value-added in maple syrup products in the province, it's important that this support be maintained and diversified.

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<sup>8</sup> Information on this program is available at <https://agriculture.canada.ca/fr/programmes/paiements-anticipes>.

<sup>9</sup> Delivery agents by agricultural sector and province are identified on the APP website: [Advance Payments Program: Advance Payments Program Delivery Agents - agriculture.canada.ca](https://agriculture.canada.ca/advance-payments-program-delivery-agents).



## ***Economic impact of the maple syrup industry in New Brunswick***

### **7. Conclusion**

The study had two objectives. Firstly, to take stock of the province's maple syrup industry and estimate its economic impact. Secondly, to estimate the relative contribution of the maple syrup and hardwood industries when additional resources are allocated to them.

Compared to its situation in 2010, New Brunswick's maple syrup industry has experienced rapid growth in both the number of taps (up 86%), syrup production (up 162%) and the value of this production (up 77%). By 2022, its relative position in the Canadian industry had improved.

This growth was made possible by changes in the production structure, as the role of large companies increased, and access to more space on Crown land.

Today, the industry remains concentrated in the province's northern and northwestern regions. They account for 67.5% of producers and 97.7% of taps. Climate change is likely to accentuate the position of these two regions.

The hardwood industry also has a strong presence, albeit to a lesser extent, in the north and northwest of the province. In 2022, nearly 57% of this wood material was processed in these two regions.

In terms of economic impact, in 2022, the maple syrup sector was responsible for a total of over 542 jobs (FTEs) in New Brunswick (an increase of 67% since 2010) and over 622 in Canada. The total contribution to New Brunswick's GDP was over \$37 million (an increase of 112% since 2010) and over \$61 million to Canada's GDP. Revenues for the New Brunswick government were \$3.6 million, an increase of 272% since 2010.

In 2021, the hardwood sector generated a total of over 9,100 jobs (FTEs) in New Brunswick and contributed over \$1.4 billion to the province's GDP. The sector generated total revenues of over \$143 million for the provincial government and \$174 million for the Government of Canada.

The total impact of the hardwood, timber and non-timber forest products (NTFP) sector can be obtained by summing the contribution of the two sectors analyzed.

As for the addition of 1,000 hectares of resources to the maple syrup sector, it will translate into an economic impact of 26 jobs (FTEs) in New Brunswick, \$1.8 million to the province's GDP, \$200,000 in additional revenues for the New Brunswick government, and about the same amount for the Government of Canada.

The addition of 1000 hectares to the hardwood sector will generate 4 jobs (FTE) in New Brunswick, add \$700K to the province's GDP, and increase revenues for the New Brunswick and federal governments by \$100K. These results are consistent with those obtained in 2012.

Finally, the province's maple syrup producers face several major challenges. They recognize that climate change will force them to adapt their practices, look for maple species that are more resistant to this new environment, work to reduce their industry's ecological footprint, and take advantage of maple groves' contribution to carbon capture.

To remain competitive in an increasingly competitive industry, they will need to integrate new technologies, innovate in the development of new value-added products, and ensure that working conditions are attractive to new workers.

However, the successes of the last ten years are reassuring for the future of this industry. These successes must be valued, encouraged, and supported. The province will be a key partner in choosing the right strategic directions for the industry. The place it reserves for maple syrup producers on Crown land will obviously be part of these strategic choices.

## **Economic impact of the maple syrup industry in New Brunswick**

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