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2021 Northeast Maple Business Benchmark

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2021 Northeast Maple Business Benchmark

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University of Vermont Extension



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Introduction

The 2021 production season left many producers disappointed. The UVM Extension Maple Bulletin tracked feedback from producers on maple sap flow and syrup processing as the season advanced. Comments like “lousy”, “poor season”, and “terrible production and quality” were verified with measurements of low sugar content the entire season.¹ While sap flow volume was reported as average to normal in many instances, pervasive low sap sugar content influenced the lower syrup production totals.

United States maple crop production statistics published by the National Agricultural Statistics Service in 2021 showed a significant drop in production across the country. The total U.S. crop decreased to 3,721,000 gallons (~44.4 million pounds) in 2021, a 9% decline from the prior year.

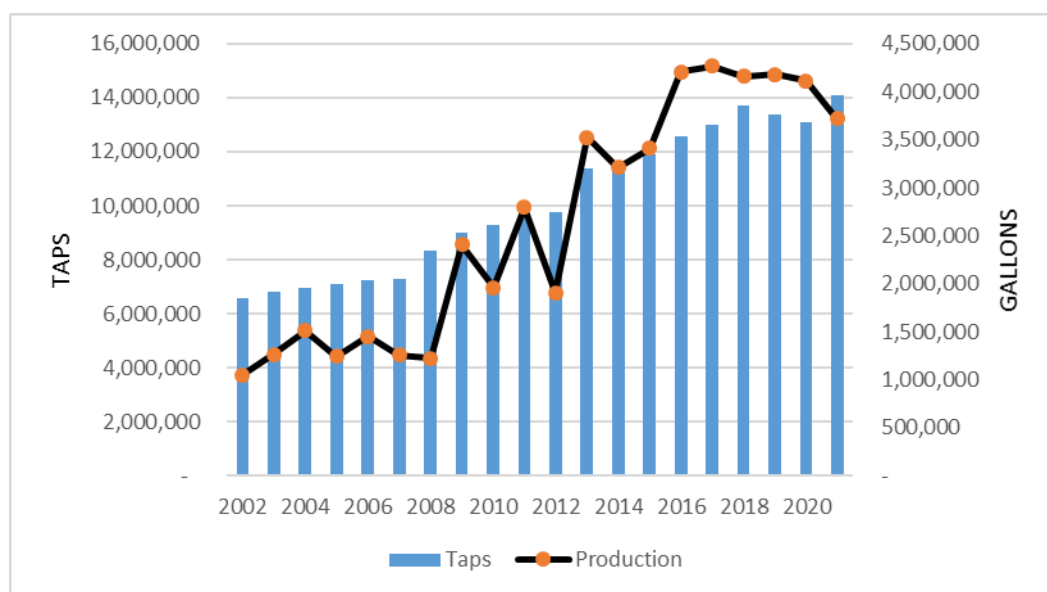


Figure 1: United States maple syrup production and tap count 2002-2021 (United States Department of Agriculture, National Agricultural Statistic Service)

Market growth continued to be strong during the 2021 marketing season. Consumers and buyers in the U.S. fueled steady growth in pure maple syrup sales with the ongoing influence of COVID-19 lifestyle changes. An increase of food-at-home purchasing paired with increases in discretionary spending for many shoppers was sufficient to put tension on syrup inventories as calendar year 2021 came to a close. Producers and sellers with the ability to set prices began to increase their selling prices during 2021. Bulk syrup markets, somewhat slower to respond, began to demonstrate price increases later in 2021 and continued with additional bulk price increases in 2022. Uncertainty grew about whether syrup inventories would be sufficient to cover sales before the 2022 syrup crop was available for sale. Despite a very strong production year in 2022, the depletion of syrup inventories to low levels prompted continued price increases for U.S. syrup through most of 2022.

¹ Vermont Maple Bulletin: Available online at www.vermontmaplebulletin.wordpress.com/

The 2021 Northeast Maple Business Benchmark report documents the ninth year of financial record analysis for commercial syrup producers. The project includes maple producers in Vermont, Maine, New Hampshire and Massachusetts. Participants had to generate at least \$100,000 in annual gross sales to be included in the study. Tap counts for this year's participant businesses ranged from 7,000 taps to 65,000 taps.

The 2021 study group is a small sample of the entire Northeast maple industry. Total taps and total gallons of syrup produced by this study group equals 2% of the entire U.S. crop and U.S tap count respectively. The methods for this project and our reported observations, however, can compel maple business managers to assess their particular business situations. Maple managers can use the cost analysis methods presented here to analyze their own business and monitor the changes in their individual performance from year to year.

Terms and Definitions

Cost of Production (COP): Calculated by adding annual variable operating costs, fixed costs, accrued expenses, depreciation and value of unpaid labor. Certain fixed expenses, capital assets and depreciation have been pro-rated to reflect the allocation of this expense to the “maple enterprise” versus other business activities. Depreciation cost is obtained by dividing the purchase price of capital assets by an average life span. No consideration is given to depreciation taken for tax purposes or estimated salvage values in this report.

The “cost of production” section of this report includes three different cost of production calculations. All cost of production calculations exclude any payments made toward real estate ownership. The “full economic cost of production” includes both owner draws and any residual unpaid owner labor and management. Unpaid labor is valued at \$22.00 per hour.

COP from Operations: Includes variable costs, fixed costs (excluding loans), capital expenses and owner compensation.

COP with Depreciation: Includes COP from Operations and depreciation. It does not include owner draws or unpaid labor/management.

Full Economic COP: Includes COP with Depreciation, owner draws and the value of unpaid labor/management.

Bulk Producers: These producers sell 90% or more of their gross sales to bulk buyers.

Intermediate Assets: Equipment, machinery and improvements that have a useful life of more than one year. Long term real estate assets were not included in this analysis.

Investment (Asset @ Cost): Investment refers to the cash value for the purchase of intermediate assets in use by the business. Participants reported the cash cost at the time of purchase. In some cases, a Fair Market Value estimate was used to value assets and/or calculate depreciation when cost basis records were not available.

Long Term Assets: Long term assets include buildings and improvements with a lifespan greater than 20 years. Real estate values were not included in this project (nor was cash payments or debt service related to real estate).

Median: The mid-point of a range of data with an equal number of data points below and above the median.

Net Returns to Real Estate: Accrual adjusted income, less operating expenses, less depreciation, less value of owner unpaid labor. Principal and interest on real estate payments are not included.

Production-Based Income: Sales, plus inventory adjustments, plus accounts payable/receivable adjustments at the end of the year. Inventory valuations were based on expected sale prices given the product form (package size) at the end of the year. Inventory of bulk syrup intended for re-packing to retail was valued at bulk prices. Retail packaged inventory was valued at conservative retail prices and/or discounted.

Sales: Cash receipts received from January 1st – December 31st. For certain indicators “production based income” replaces sales.

Top Profit Group: This is the group of producers that demonstrated a “Return on Assets” that is equal to or above the group average. Return on Assets is calculated as “net farm income ÷ intermediate assets”

Unpaid Owner Labor: Owners estimated the number of hours contributed to essential operating activities for the following categories: sugar bush, sugarhouse time, packing/canning, sales, marketing, distribution and office time. Each hour was valued at \$22 per hour.

Variable and Fixed Costs: These are the costs associated with annual operation of the business. These operating expenses include interest payment associated with debt service but not the principal portion. The following “capital activity” items are not included in our variable or fixed cost categories: principal portion of debt payments (cash expenses), capital expenses (cash expenses), depreciation (non-cash) and value of unpaid labor (non-cash).

Wholesale/Retail: Producers that sell less than 90% of total sales to bulk buyers. Other sales channels include a mix of business to business and direct sales to customers.

Participant Overview

Fourteen businesses completed financial analysis for the 2021 calendar year. Three of these businesses are not included in the group analysis due to situations that would dramatically distort the group analysis. This includes entity transitions, formations or entity sales that had large impact on accounting records from the prior year. The 2021 benchmark report demonstrates key management and financial indicators of eleven businesses.

Tap Number

- 5,000 - 8,499 taps: 2 producers
- 8,500 - 14,999 taps: 1 producers
- 15,000 taps and over: 8 producers

Fuel

- 7 producers use oil
- 4 producers use wood, wood chips or wood pellets

Market Channels

- 7 producers are categorized as “Bulk” (90% or more of sales from Bulk Sales).
- 4 producers are categorized as “Retail/Wholesale” mix.
- This group benchmark includes a mix of certified organic producers and non-organic producers.

Land Use

Table 1: Financial Measures Per Acre

	Range		Average	Median
	Low	High		
Taps Per Acre	31	69	53	56
Gallons Syrup Per Acre	11	36	21	17
Pounds of Syrup Per Acre	120	401	229	194
Production Based Income Per Acre (Gross)	\$371	\$1,142	\$799	\$765
Net Returns Per Acre	-\$230	\$171	-\$37	-\$13

Productivity

The tables below demonstrate the productivity averages for the group of Northeast Benchmark participants. USDA National Agricultural Statistics Service reported the following average yield for key states in 2021: Vermont produced 0.269 gallons of syrup per tap (~2.97 pounds), Maine produced 0.262 gallons of syrup per tap (~2.91 pounds) and New Hampshire produced 0.240 gallons per tap (2.67 pounds per tap).² Production yield decreased 33% for this study group from 2020 to 2021.

Table 2: Productivity Per Tap-2021

	Range		Average	Median
	Low	High		
Taps (#)	7,000	67,500	24,192	22,000
Gallons Per Tap	0.14	0.47	0.32	0.34
Pounds Per Tap³	1.6	5.3	3.6	3.8

² USDA NASS Northeastern Region. 2022. “Maple Syrup Report”. Available online at: https://www.uvm.edu/sites/default/files/Agriculture/maple/Crop_Production_06_10_2022_-_crop0622.pdf

³ The conversion factor of 11.138 lbs. = 1 gallon syrup was used when actual records were not available.

Table 3: Average Productivity Per Tap from 2014 – 2021, Benchmark Study Participants (No data 2018)

	2014	2015	2016	2017	2019	2020	2021
Gallons Per Tap	0.38	0.40	0.51	0.42	0.45	0.48	0.32
Pounds Per Tap	4.3	4.4	5.6	4.7	4.9	5.4	3.8

Production yield averages are shown in Figure 1 and demonstrate that the participants in this study have higher production yields compared to the national average. The figure presents the average of the entire study group, the “above average” group reflects only the producers whose yield is greater than 0.48 gallons (5.3 lbs.) per tap and the “below average” group reflects only the producers whose yield is below 0.48 gallons (5.3 lbs.) per tap.

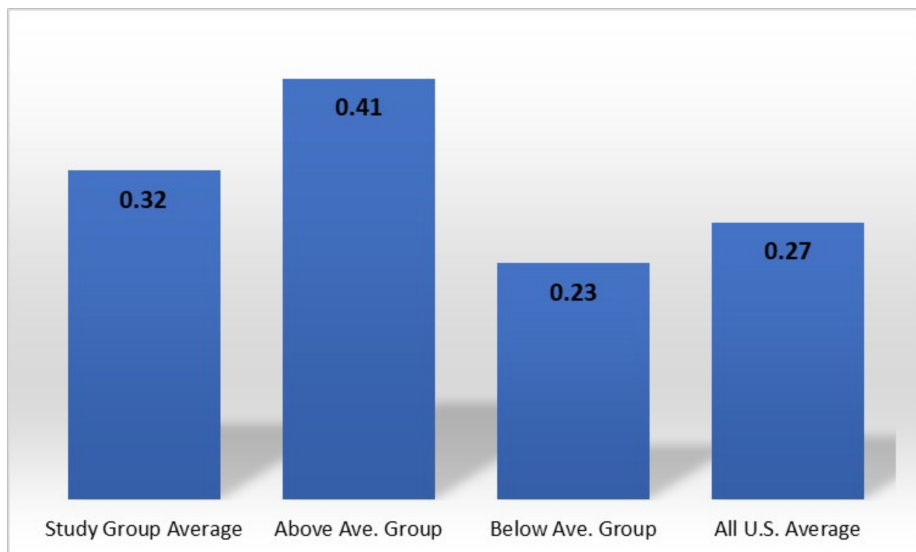


Figure 2: Production Yields in 2021 (gallons per tap)

Investments

Participating businesses invested an average of \$47 per tap for machinery, equipment, buildings and improvements utilized within the maple enterprise. The investment results do not include the capital investment in forest land ownership. Due to the complexity of prior property purchases over time, differences in real estate valuation and difference in appreciation factors across regions, the investment tables below only include intermediate asset investment related to the maple enterprise.

Assessment of the investment levels prompt several questions and highlight the limitation of the small sample in this study. In prior years, investment levels appeared to have linkage to economies of scale or to production levels. Results in 2021 do not validate the concept of investment efficiency and economies of scale for larger businesses (Figure 3). Neither do the results in Table 6 support the theory that higher production yields are linked to a higher level of investment. Two possible explanations are worth exploring and applying to practical business management decisions. The study observes multiple large-scale enterprises that have recently invested in tap expansion and new technology at a much higher cost than other businesses that are later in their life-cycle. A second factor to consider is the impact of a very poor crop season. While upper level yield thresholds, as observed in prior years, might be associated with higher cost equipment investments; it is unclear if the lower level productivity experienced during a poor crop year like 2021 is equally associated with the value of equipment investments.

Table 4: Investment Per Tap (cost basis valuation)

	Range			
	Low	High	Average	Median
Asset @ Cost Per Tap	\$34	\$66	\$47	\$44

Table 5: Investment Per Tap for Tap Size Groups

Taps	Range			
	Low	High	Average	Median
5,000 – 8,499	\$27	\$44	\$36	\$36
8,500 – 14,999	-	-	- unable to report, too few cases -	-
15,000 +	\$35	\$105	\$49	\$39

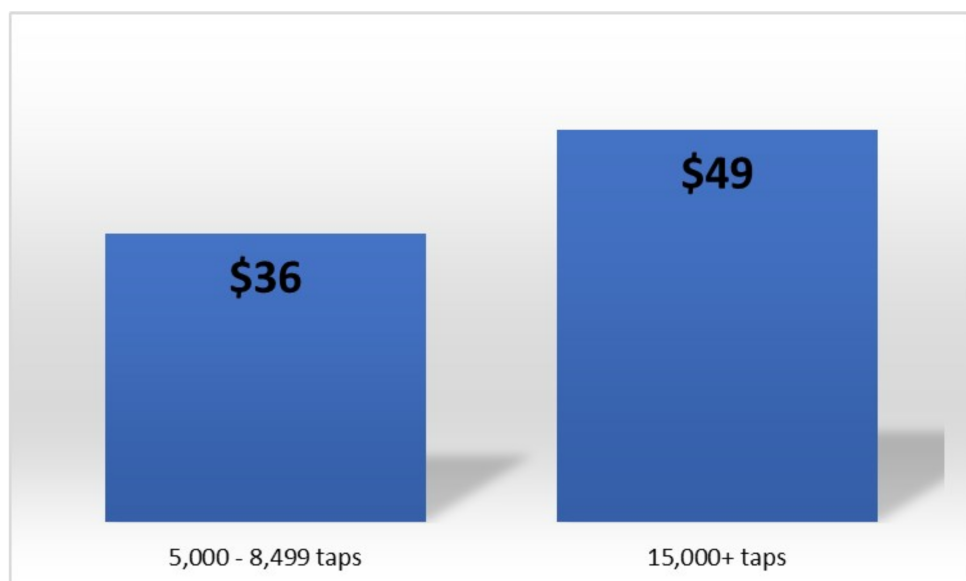


Figure 3: Investments for Three Size Classes (2021), Dollars per Tap

The average yield for the entire group is 0.32 gallons per tap or 3.6 pounds per tap in 2021. In prior years of this study the above average yield producers had a higher average investment level compared to the below average yield producers. In 2021, however, the higher yield sub-group was not reflective of higher investment levels.

Table 6: Investment Levels Based on Yield

	Average Investment
Above Average Yield Producers	\$47 Per Tap
Below Average Yield Producers	\$56 Per Tap

New maple businesses must access significant capital to establish and outfit an enterprise at commercial scale. The following guidance can be used to estimate the complete start-up investment that includes purchasing forest property. Using a tap density of 55 taps per acre, the following real estate values can be added to the investment benchmarks reported in Table 5: \$1,000 per acre = \$18 per tap; \$1,500 per acre = \$27 per tap; \$2,000 per acre = \$36 per tap; \$2,500 per acre = \$45 per tap and \$3,000 per acre = \$55 per tap.

Table 7 below provides an estimated benchmark for overall capital needed to establish a 5,000 – 20,000 tap enterprise at various forest land valuations. These calculations do not include working capital needed for labor or operating expenses prior to cash inflows. Owners should factor in working capital needs over the first 18 months of operation for a more complete capital plan.

Table 7: Estimated Start-Up Capital for at Various Real Estate Values

Taps	Intermediate Assets	Full Start-Up Per Tap	Full Start-Up Per Tap	Full Start-Up Per Tap
		Forest Land \$1,000/A	Forest Land \$2,000/A	Forest Land \$3,000/A
Scenario 1	\$45	\$63	\$81	\$100
Scenario 2	\$55	\$73	\$91	\$110
Scenario 3	\$65	\$83	\$101	\$120

Expenses

Tables 8 – Table 12 report a summary of key expenses. This is not a complete list of all the expense categories present in the full cost of production. This section shows a category for “Labor (paid)” and “All Labor (including unpaid labor)” to show the difference between cash-based expenses for employees and the full economic cost of owner labor. The “variable cost total” and the “fixed cost total” do not include the value of unpaid labor. The results for the full costs of production are provided in Tables 13-15.

Depreciation

The aging and incremental loss of value to business assets (depreciation) is a significant expense that maple producers must monitor and plan for. For this cost analysis the “tax based” depreciation, as allowed by IRS tax code, is not utilized due to the tendency to overstate or accelerate the depreciation expense. For this study business assets are depreciated according to the straight-line method using purchase price and standard lifespans for each item. No salvage values are included in these calculations.

In 2021 depreciation ranged from low of 2% to a high of 40% of production-based income (See Table 11). The average depreciation was 18% of production-based income. The lowest depreciation reported at 2% is outlier to the group. This low rate is directly attributed to a late-stage business whereby most business assets have timed-out on the lifespans for straight-line calculations and very minimal re-investment has occurred in the most recent five years.

Table 8: Key Expenses Per Gallon (All Producers)

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only) ⁴	\$0.58	\$2.06	\$1.15	\$0.83
Labor (Paid)	\$1.38	\$13.08	\$5.44	\$4.72
All Labor (including unpaid Labor) ⁵	\$1.59	\$44.24	\$13.46	\$10.86
Electric	\$0.15	\$4.84	\$1.20	\$0.90
Supplies	\$1.13	\$21.26	\$6.02	\$2.36
Variable Cost Total	\$12.86	\$49.12	\$21.42	\$17.82
Fixed Cost Total	\$4.19	\$12.26	\$7.99	\$7.87
Depreciation	\$1.05	\$14.30	\$7.26	\$8.13

Table 9: Key Expenses Per Pound (All Producers)

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only)	\$0.05	\$0.19	\$0.10	\$0.07
Labor (Paid)	\$0.12	\$1.17	\$0.49	\$0.42
All Labor (including unpaid Labor)	\$0.14	\$3.97	\$1.21	\$0.98
Electric	\$0.01	\$0.43	\$0.11	\$0.08
Supplies	\$0.10	\$1.91	\$0.54	\$0.21
Variable Cost Total	\$1.15	\$4.41	\$1.92	\$1.60
Fixed Cost Total	\$0.38	\$1.10	\$0.72	\$0.71
Depreciation	\$0.09	\$1.28	\$0.65	\$0.73

⁴ Operators using harvested cordwood or chips report no cash expense for fuel. These operations have higher labor or equipment related expenses related to firewood production. Data points for \$0 fuel expense were removed from average or median cost to show a usable metric for those that do manage a direct expense for fuel purchase.

⁵ The value of unpaid labor has been assigned based on owner hours worked multiplied by \$22 per hour value.

Table 10: Key Expenses Per Tap (All Producers)

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only)	\$0.22	\$0.73	\$0.40	\$0.35
Labor (Paid)	\$0.27	\$5.21	\$2.02	\$1.75
All Labor (including un-paid Labor)	\$1.13	\$8.55	\$4.29	\$3.44
Electric	\$0.05	\$2.49	\$0.50	\$0.29
Supplies	\$0.54	\$6.01	\$2.01	\$1.09
Variable Cost Total	\$3.66	\$13.89	\$7.71	\$7.73
Fixed Cost Total	\$1.19	\$5.85	\$3.04	\$2.68
Depreciation	\$0.34	\$5.03	\$2.67	\$2.46

Table 11: Key Expenses Expressed as a Percent of Production-Based Income (All Producers)

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only)	1%	6%	3%	2%
Labor (Paid)	2%	37%	14%	12%
All Labor (including un-paid Labor)	6%	57%	29%	27%
Electric	0.4%	17%	3%	2%
Supplies	4%	33%	13%	7%
Variable Cost Total	39%	75%	50%	47%
Fixed Cost Total	6%	31%	20%	21%
Depreciation	2%	40%	18%	18%

Table 12: Bulk Producers Only, Key Expenses Per Pound

	Range		Average	Median
	Low	High		
Fuel (Evaporator Only)	\$0.04	\$0.18	\$0.10	\$0.09
Labor (Paid)	\$0.03	\$0.87	\$0.31	\$0.14
All Labor (including unpaid Labor)	\$0.03	\$1.03	\$0.61	\$0.64
Electric	\$0.01	\$0.64	\$0.14	\$0.05
Supplies	\$0.07	\$0.49	\$0.22	\$0.23
Variable Cost Total	\$0.28	\$1.43	\$0.84	\$0.69
Fixed Cost Total	\$0.15	\$1.19	\$0.66	\$0.67
Depreciation	\$0.19	\$0.80	\$0.58	\$0.63

Cost of Production, Ratios and Comparisons

The cost of production (COP) analysis offers the opportunity to assess the costs of particular activity levels within the business by including cash-based and non-cash expenses. This report provides three separate COP metrics including: a) COP from Operations, b) COP with Depreciation and c) Full Economic COP which includes non-cash expenses and the opportunity cost of unpaid owner-family labor.

The COP from Operations in Table 13 shows an average of \$ 2.64 per pound for the entire study group. The median measure is also provided as an alternative central point of tendency to reconcile the large minimum to maximum ranges for the metrics reported. COP from Operations offers a close comparison to actual cash costs (not including debt principal) and the revenue needed to break-even on cash flow.

Table 13: Cost of Production from Operations

	Range		Average	Median
	Low	High		
COP -- Operations Per Tap	\$6.06	\$16.22	\$10.75	\$10.50
COP -- Operations Per Gallon	\$20.38	\$53.32	\$29.42	\$26.49
COP -- Operations Per Pound	\$1.83	\$4.79	\$2.64	\$2.38
COP -- Operations Per Acre	\$287	\$924	\$564	\$535

In Table 14 and Table 15 one sees the addition of non-cash expenses that are significant over the lifetime of the business. These non-cash expenses are required to calculate the profitability of the business. Depreciation and unpaid labor combine to contribute over 30% of total economic costs. Despite being potentially overlooked as a non-cash expense, these major cost factors emphasize how labor efficiency and well planned investments have a large influence on cost control.

Table 14: Cost of Production with Depreciation

	Range		Average	Median
	Low	High		
COP with Depreciation Per Tap	\$7.96	\$19.37	\$13.42	\$12.65
COP with Depreciation Per Gallon	\$22.71	\$62.03	\$36.68	\$34.79
COP with Depreciation Per Pound	\$2.04	\$5.57	\$3.29	\$3.12
COP with Depreciation Per Acre	\$376	\$1,075	\$705	\$695

Table 15: Full Economic Cost of Production

	Range		Average	Median
	Low	High		
Full Economic COP Per Tap	\$10.00	\$23.53	\$15.87	\$16.57
Full Economic COP Per Gallon	\$23.87	\$95.29	\$45.20	\$41.59
Full Economic COP Per Pound	\$2.14	\$8.56	\$4.06	\$3.73
Full Economic COP Acre	\$476	\$1,281	\$836	\$774

Table 16: Ratios for All Producers

	Range		Average	Median
	Low	High		
Production Based Income ÷ Investment	7%	67%	35%	32%
Net Returns to Real Estate ⁶ ÷ Investment	-7%	8%	-1%	-1%
Unpaid Labor ÷ Production Based Income	0%	55%	16%	10%
Depreciation ÷ Production Based Income	2%	40%	18%	18%

Readers should note that the study group has shifted from 2015-2021. Certain individuals have entered the project, exited or made changes to their business. The most significant change occurs with the 2019 analysis year. In 2019 the project shifted to multiple states in the northeast and larger scale maple enterprises. Table 17 below indicates a notable increase in the median tap count beginning in 2019. The increasing tap count trend by 2021 demonstrates the moderate expansion of current participants in the study group. Fluctuations in annual yield and market prices have also had impact on annual gross sales levels that ratios linked to production based income.

⁶ Net Returns to Real Estate includes all operating costs, depreciation and full economic cost of unpaid labor and management.

Table 17: Comparisons of Ratios for 2015 – 2021

	Averages (no data 2018)						
	2015	2016	2017		2019	2020	2021
Production Based Income ÷ Investment	37%	47%	30%		40%	41%	35%
Net Returns to Real Estate ÷ Investment	0%	9%	3%		6%	0%	-1%
Unpaid Labor ÷ Production Based Income	29%	24%	33%		20%	16%	16%
Depreciation ÷ Production Based Income	24%	18%	25%		16%	18%	18%
Tap Count (Median)	6,600	6,000	7,300		12,140	18,100	22,000
Tap Count (Average)	7,909	7,391	7,838		18,760	20,979	24,192
Gallons Per Tap	0.40	0.51	0.42		0.45	0.48	0.32

Net returns were lower in 2021 compared the previous five years (Table 18). Both larger and smaller scale groups included participants with large negative net returns. Industry specialists point to the cumulative effect of poor yields, lagging syrup price adjustments and inflation for the demonstrated low profitability in a year where market demand growth was said to be strong.

Table 18: Net Returns to Asset Investment for Tap Size Groups

Taps	Range		Average	Median
	Low	High		
Less than 15,000 Taps	-4.9%	7.8%	0.8%	-0.3%
15,000 Taps and Larger	-7.0%	5.1%	-1.2%	-1.7%

Results in Table 19 indicate that larger scale operations do not necessarily have a lower cost of production as often assumed. This result from a small group benchmark is likely impacted by the different market channels and different business models observed within the 2021 participants. The 15,000+ tap group includes businesses that pursue a mixed market channel plan selling via retail, wholesale and bulk outlets. The increased costs of running a retail business factor into the 15,000 tap size class in Table 19. A more detailed look at cost of production related to market channels is provided in Table 23.

Table 19: Full Economic Cost of Production Per Pound for Tap Size Groups

Taps	Range		Average	Median
	Low	High		
5,000 – 8,499	\$3.50	\$8.56	\$6.03	\$6.03
8,500 – 14,999	--	--	- unable to report, too few cases -	--
15,000 +	\$2.14	\$6.16	\$3.79	\$3.74

Top Performers

The following tables show the financial performance for producers who achieved above average profits for this study group. Profitability was measured using “Net Returns ÷ Investment.” The average profit level for the entire group in 2021 was -1% and the Top Profit Group included participants who demonstrated -0.33% to 7.6% “Net Returns ÷ Investment.”

Table 20: Average Full Economic Cost of Production Top Profit vs. Full Group (Per Pound)

	Top Profit Group	Full Group
Taps	Per Pound	Per Pound
5,000 – 8,499	\$3.50	\$6.03
8,500 – 14,999	--	--
15,000 +	\$2.76	\$3.79

Table 21: Average Full Economic Cost of Production Top Profit vs. Full Group (Per Gallon)

	Top Profit Group	Full Group
Taps	Per Gallon	Per Gallon
5,000 – 8,499	\$39.03	\$67.16
8,500 – 14,999	--	--
15,000 +	\$30.76	\$42.19

Table 22: Average Full Economic Cost of Production Top Profit vs. Full Group (Per Tap)

	Top Profit Group	Full Group
Taps	Per Tap	Per Tap
5,000 – 8,499	\$12.63	\$15.53
8,500 – 14,999	--	--
15,000 +	\$11.65	\$15.67

Cost of production is measured in different ways. The per gallon or per pound unit of measure will relate costs to the yield produced (Table 20,21) and provide easy reference back to market prices. The per-tap unit of measure (Table 22) relates costs to the maple resource management, regardless of yield. A per tap measure offers an alternative calculation for year-to-year cost management that is not prone to distortion from changes in annual yields.

In 2021, the “Top Profit Group” does demonstrate lower costs than the “Full Group” consistently for all measures and all size classes. This year’s results contend with previous years that found cost management alone was not necessarily linked directly to profitability.

Market Channel

Producers identified as “Retail/Wholesale” recorded costs per pound, per gallon and per tap that are approximately 25% higher than the cost of “Bulk Only” producers. This higher cost trend for more intensive marketing activity has been observed consistently over multiple study years.

Both market channel groups included businesses that were not profitable when measured by net returns, but “Bulk Only” showed a larger magnitude of financial loss in 2021. In 2021, the average “Retail/Wholesale” net returns were positive while the average net returns for “Bulk Only” producers were negative. This result might foreshadow a future problem for the U.S. maple industry at large. Large scale enterprises with above average yields can struggle with profitability. Estimating a market price threshold for this situation is difficult with a small research group and poor crop in 2021. High inflation rates also impacted production costs in 2021. By the time of this report preparation in 2023, consistent increases to interest rates may be curbing certain inflation indices, however, the cost of borrowing capital has now increased operating costs for those producers with outstanding commercial debt.

The Quebec Maple Producers Association (PPAQ) released a new multi-year pricing plan that for 2023 and forward. Meanwhile, U.S. producers must manage operations with the understanding that several factors like maple weather, currency exchange rates, maple supply-demand and fiscal policy has an ongoing impact to costs and profits.

Table 23: Full Economic Cost of Production and Market Channel

Market Channel	Unit	Low	High	Average
Bulk	Pound	\$2.14	\$6.16	\$3.61
	Gallon	\$23.87	\$68.63	\$40.16
	Tap	\$10.08	\$20.86	\$15.70
	Acre	\$476	\$1,282	\$886
	% of PBI	83%	128%	108%
Average Profit Margin				- 8 %
	Unit	Low	High	Average
Retail/ Wholesale	Pound	\$2.91	\$8.56	\$4.85
	Gallon	\$32.43	\$95.29	\$54.01
	Tap	\$10.00	\$23.53	\$16.15
	Acre	\$547	\$1,151	\$751
	% of PBI	85%	123%	99%
Average Profit Margin				1 %