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2013 Maple Business Benchmark

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Introduction

Strong market prices, technology improvements and increasing sugar bush sizes are key features of the Vermont maple industry. The continued growth of maple production and maple investments elevate the interest in the financial performance of harvesting maple sap and processing maple syrup. The 2013 Maple Business Benchmark is the result of the first year of focused collection of financial information for the sector. University of Vermont Extension worked with 10 maple producers to complete financial analysis of their maple enterprise. Participants each received a detailed financial summary of their business that included information on sales, expenses, investments and profitability. That same information has been combined to create the 2013 Maple Benchmark report. The original participants represent a small sample of the entire Vermont maple industry. This report will show a wide range of figures due to the small group size and diversity of operations participating in 2013. From 2014-2015 the benchmark study will include a larger number of participants. Special thanks to the Vermont Agency of Agriculture, Food and Markets Specialty Crop Grant for support of this project from Fall 2014 to 2017.

This report includes a large amount of data but only represents a fraction of the overall data collected. Contact the research team with questions about this report or inquiries about other data available. Given the infancy of this project, the 2013 Maple Business Benchmark includes very few conclusions.

Terms and Definitions

Accrual Adjusted Production 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.

Cost of production: calculated by adding annual variable costs, fixed costs, inventory adjustments, annual depreciation and value of unpaid labor. Certain fixed expenses, capital assets and depreciation have been pro-rated (based on owner input) to reflect how much of this expense is assigned 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 3 different cost of production calculations.

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

Investment (Asset @ Cost): through this report "investment" refers to the cash value for purchase of intermediate assets in use by the business. Participants reported the cash cost at time of purchase.

Long Term Assets: in this project 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 Farm Income: Adjusted Cash Receipts less operating expenses less depreciation less value of unpaid labor. (operating expenses include interest on debt but does not include depreciation). Neither principal nor interest on real estate payments are included.

Sales: Cash receipts received from January 1 2013 – December 31, 2013

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 an average rate of $18 per hour.

Variable and Fixed Costs: These are the costs (variable and fixed) associated with annual operation of the business. Operating expenses includes interest payment associated with debt service. Operating expenses do not include the following "capital activity" items: principal portion of debt payments (cash expenses), capital expenses (cash expenses) or depreciation (non-cash).

Participant Overview

Ten maple operations completed financial analysis for 2013. The following lists describe key features of the business owners and their operations:

a) **Tap Number:** 4 producers 2,600 - 4,999 taps
4 producers 5,000 - 8,500 taps
2 producers 15,000 – 20,000 taps

b) **Reverse Osmosis:**
10 out 10 participants used reverse osmosis (RO) technology. Three participants have used RO technology for more than 20 years.

c) **Fuel:** 5 producers use oil
5 producers use wood (including 2 using chips or pellets)

d) **Pipeline Systems:**
All 10 use vacuum tubing primarily, 3 also use gravity tubing.
2 producers are certified organic by Vermont Organic Farmers.

e) **Food Safety:**
7 producers have completed a recent food safety certification

f) **Experience:**
3 producers have owned their business for over 30 years
4 producers have owned their business from 16-30 years
3 producers have owned their business for 0-7 years

g) Market Channels

4 Producers categorized as "Bulk" (90% or more of sales from Bulk Sales)
6 Producers categorized as "Retail/Wholesale" demonstrated less than 90% sales from bulk and are characterized by having retail and/or direct wholesale market channels.

h) Top Investments and Key Practices:

Participants listed the key practices and technology that influence their performance. The most common responses included: woods management and utilization of reverse osmosis.

i) Outlook (participants responded to a series of questions about plans over the next 3 years)

a. "Expand, Downsize, Stay the Same?": 6 Plan to stay the same, 3 Expand, 1 Downsize
b. "Buy sap?": 4 Yes, 3 No, 3 Not Sure
c. "Seek new markets": 3 Yes, 5 Not Sure, 2 No
d. "Influence of Climate Change and Weather": Anecdotal conversations explored owner's perception of climate change and weather. Sugar makers indicated they have historically dealt with uncertainty about seasonal weather trends and that certain practices and new technology have reduced weather related risk. High vacuum systems have allowed for better sap yields even during below average "sugaring weather". Larger tap numbers, sanitation/tap technology and education support early tapping which allows for operations to be ready for January and February sap runs that historically would have been missed. Severe weather events could damage sugar bush or tubing installations. Insect pressure and long term maple stand regeneration were not discussed.

Land Use

	Range			
	Low	High	Average	Median
Sales Per Acre	$387	$2,360	$1,189	$1,183
Accrual Adjusted Income Per Acre	$387	$2,360	$1,265	$1,188
Net Farm Income Per Acre	($556)[1]	$1,023	$156	$87
Taps Per Acre	37	134	69	59
Gallons Syrup Per Acre	12	70	33	30

Table 1: Financial measures per acre

NOTE [1]: ( ) indicates a negative number

The 3 operations with the lowest number of taps per acre were either certified organic or had been in operation for less than seven years.

Productivity

	Range			
	Low	High	Average	Median
Taps (#)	2,650	18,500	7,440	5,650
Gallons Per Tap	.32	.58	.47	.47

Table 2: Productivity per tap

USDA National Agricultural Statistics Service report the average yield for Vermont in 2013 was 0.352 gallons syrup per tap.

Investments

	Range			
	Low	High	Average	Median
Asset @ Cost Per Tap	$16.90	$59.54	$41.92	$42.67

Table 3: Cost basis investment per tap

	Range			
Taps	Low	High	Average	Median
2,600-4,999	$105,100	$196,802	$157,214	n/a
5,000 – 8,500	$152,175	$433,450	$296,656	n/a
15,000 – 20,000	$263,449	$624,569	$444,009	n/a

Table 4: Total investment costs and tap size (not including real estate)

	Asset @ Cost
Above Average (over 0.47 Gal per tap)	$45.28 Per Tap
Below Average (under 0.47 Gal per tap)	$38.56 Per Tap

Table 5: Comparing production (gallons per tap) and investment per tap

Expenses

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only)	$0[2]	$2.28	$1.19	$1.42
Electric	$0	$1.97	$0.77	$0.72
Labor (Paid)	$0	$19.33	$4.85	$2.10
Unpaid Labor	$5.41	$29.56	$12.60	$10.35
Supplies	$0.04	$6.22	$2.41	$1.91
Variable Cost Total	$3.24	$33.29	$15.26	$13.34
Fixed Cost Total	$1.15	$11.96	$5.73	$5.80
Depreciation	$4.09	$11.32	$7.72	$7.50

Table 6: Key expenses per gallon for all producers

NOTE [2]: Operators using harvested cordwood or chips report no cash expense for fuel, these operations have increased labor or equipment related expenses related to firewood production.

The high end range for variable costs per gallon is driven by operations that purchased significant amounts of finished syrup for resale. Operations serving retail and direct wholesale customers needed to purchase syrup to satisfy markets in early 2013 (January – March) before the 2013 crop was available. This was due to a poor crop in 2012.

	Range			
	Low	High	Average	Median
Fuel (Evaporator Only)	$1.41	$2.28	$1.75	$1.66
Electric	$0.00	$0.98	$0.56	$0.63
Labor (Paid)	$0.00	$19.33	$6.51	$3.36
Unpaid Labor	$5.41	$19.62	$9.74	$6.96
Supplies	$0.04	$3.43	$1.75	$1.76
Variable Cost Total	$3.24	$26.95	$10.55	$6.00
Fixed Cost Total	$1.15	$9.21	$4.77	$4.37
Depreciation	$4.09	$8.83	$7.10	$7.73

Table 7: Key expenses per gallon for “bulk only” group

Cost of Production, Ratios and Comparisons

	Range			
	Low	High	Average	Median
Cost of Production (COP)	$19.11	$70.75	$36.46	$32.30
Net Farm Income	($18.54)	$17.18	$2.30	$2.67

Table 8: Cost of production per gallon and net farm income per gallon

	Range			
	Low	High	Average	Median
COP (Operations)	$6.05	$38.59	$16.13	$12.99

Table 9: Cost of production per gallon for operations only (does not include depreciation or value of unpaid labor)

	Range			
	Low	High	Average	Median
COP with Depreciation	$13.70	$44.96	$23.86	$17.93

Table 10: Cost of production with depreciation (does not include value of unpaid labor)

	Range			
	Low	High	Average	Median
Sales ÷ Investment	25.3%	85.6%	48.9%	38%
NFI ÷ Investment	-14.0%	30.9%	3.5%	2.5%
Unpaid Labor ÷ Sales	0.00%	70 %	19.7%	16.4%
Depreciation ÷ Sales	11.3%	31.1%	20.8%	20.8%

Table 11: Ratios for all producers combined

	Range			
Taps	Low	High	Average	Median
2,600-4,999	-14.0%	4.6%	-2.9%	2.1%
5,000 – 8,500	1.7%	30.9%	14.0%	11.6%
15,000 – 20,000	-13.0%	9.1%	-1.9%	-1.9%

Table 12: Net farm income divided by investment for three tap size groups (NFI ÷ Investment)

Taps	Top 50%	Full Group Average
2,600-4,999	$23.23	$46.73
5,000 – 8,500	$23.44	$29.36
15,000 – 20,000	$22.98	$30.12

Table 14: Cost of production per gallon for the top 50% of producers (using the return on assets calculation of net farm income / intermediate assets) for three tap size groups

This table demonstrates that businesses can be profitable at all scales and reinforces the adage that "management" is the most important factor driving profitability.

	Range			
Market Channel	Low	High	Average	Median
Bulk	$19.11	$ 37.25	$ 25.64	$ 23.10
Retail/Wholesale	$27.76	$ 70.75	$ 43.67	$ 35.29

Table 15: Cost of production and marketing channel

Managing Forward

With small sample size in 2013 we won't make definitive conclusions. Much like the individual producers assessing their own financial analysis, it is most important to watch for trends as data collection continues for 2014 and 2015 production.

We can highlight certain themes that we observe will impact the results:

Labor management
Labor management is key. Producers, families and strong cultural heritage in Vermont make it common practice to invest large amount of labor into maple sugaring. Our measurements confirm that unpaid labor is significant in some cases. From a business perspective, additional owner labor investment is common and expected but there must be a balancing force that evaluates: workload sustainability and resilience of the business if key unpaid labor is no longer available. The issue of unpaid owner labor may be most relevant to smaller size operations, given that as sugar bushes grow over 15,000-20,000 taps the magnitude of labor required will continue to grow while the capacity of one owner will have reached a maximum threshold. Larger operations are observed to have higher hired labor that will increase as the business grows.

Retail/Wholesale vs Bulk?
Six out of ten producers indicated that they sold less than 90% of their syrup bulk. Of these six only one had no bulk sales. As expected retail/wholesale (R/W) producers had a higher average sales price: $43.51/gallon compared to $31.63/gallon for bulk. However, we also saw an increased cost of production for these producers: $43.67/gallon for R/W and $25.64 for bulk. Average net income per gallon for R/W is ($.16) and $5.99 for bulk. A possible explanation for the significant difference in net income ($6.15/gallon) could be the costs incurred by 2 of our R/W producers who bought syrup for resale in early 2013 to compensate for a low production year in 2012. If we remove their data the average sales for R/W producers is $38.16/gallon and COP is $32.10 with an average net of $6.06. As noted above we cannot draw statistical conclusions from this limited data, however, there is an increased cost of production associated with selling syrup retail or wholesale. When making marketing strategy decisions these costs need to be factored in as well as the anticipated increase in sales dollars.

Depreciation
Depreciation reflects the wear and tear on assets utilized by the business. Understandably, this non-cash expense may not get significant attention during a period where the business is generating strong cash flow. Depreciation is very significant in the businesses long term ability to replace worn out equipment in the future. Managers can assess the calculated depreciation and develop their individual strategy to set aside savings for replacement of equipment at future dates through cash reinvestment or other means.

[1] Based on accrual or production based gross income

Caution Areas

Unpredictable Production: Advances in sap collection have moderated the impact of poor sugaring weather but poor crop years are still experienced. Data for this report was generated from 2013, one of the strongest crop years in recent history. Managers must expect a range of production levels from year to year when making business decisions.

Market Prices: Maple specialists have been predicting that global maple prices are likely to decrease in the coming years. By the time of this report (Dec ember 2014) we have already observed decreased prices from the highs near $3.00 per pound. The combination of repeated strong crop years, production increasing faster than market expansion and a strengthening US currency value are expected to result in continued price declines into 2015. A variety of financial techniques can be used to consider the best management decisions as prices decline.