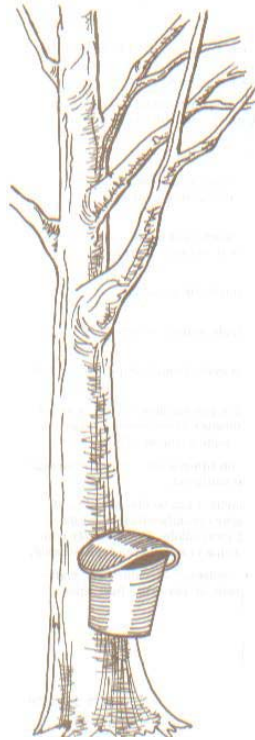


Survey of NYS Maple Producers

Report to the Steering Committee of the Lewis County Maple Syrup Bottling Facility



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Appendix 1: Detailed analysis of sampling results by county

Appendix 2: Detailed comparison of Cornell survey with NASS 2007

Census of Agriculture

Appendix 3: Survey of NYS Maple Producers

Click on the title above to open the survey document- from this document click on an individual question to view detailed analyses based on three levels of stratification: (1) number of taps (2) Regional NYSEMPA Association (3) membership status in NYSEMPA.

Acknowledgements

There are many people who assisted with this survey that we would like to recognize. First and foremost we would like to thank the hundreds of maple producers who took the time to fill out the questionnaire. Roughly 900 producers spent an estimated 500 hours providing valuable and meaningful responses to our survey questions. Without their thoughtful input, this report would not be possible.

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Bruce Bascom, Joel Boutin, Gary Gaudette, and David Marvin provided significant input regarding the state of the maple industry and future projections on bulk syrup prices, supply, and demand in the US and Canada.

We are very appreciative to those who provided the 'thank you' gifts that 30 producers received in a lottery drawing. Keith Scheibel provided 10 free admissions to the 2009 NYS Maple Conference, Steve Childs provided 10 DVDs of the maple production video series developed by Lew Staats in the 1990s, and MaryJeanne Packer provided 10 free 1-year subscriptions to The Pipeline.

Special thanks to our colleagues at Cornell who provided feedback and guidance on this project, especially Brian Chabot, Steve Childs, Peter Smallidge, and Shorna Broussard. Nancy Connelly and Karlene Smith from the Human Dimensions Research Unit also did a stellar job in administering the survey and entering the data. Francoise Vermeylen from the Cornell Statistical Consulting Unit provided helpful guidance with the statistical analysis and Jeremy Farrell also provided tremendous assistance with data management.

We would like to thank and recognize the overall project's core steering committee members – Warren Rosenthal, Renee Beyer, Michele Ledoux, Michael Chamberlin, and Glenda Ness. The Lewis County legislators and County Manager David Pendergast also showed tremendous wisdom and foresight in investing the necessary funds to make this project possible. This research that will help lay the groundwork to further develop the maple industry in Lewis County and all of New York State.

Introduction

In the Spring of 2008, Lewis County's Office of Economic Development and Cornell Cooperative Extension of Lewis County began initial discussions regarding the feasibility of locating a large scale maple syrup bottling, warehouse, and distribution facility in Lewis County. Lewis County is the largest producer of maple syrup in NY and anecdotal reports indicate that much of the syrup is sold in large drums to out of state buyers. Rather than continuing to ship bulk syrup out of state for the value to be added elsewhere, it was decided to explore the possibility of constructing a large scale bottling facility in the county. These large scale facilities need sufficient economies of scale to compete in the marketplace, so a minimum amount of syrup is needed to consider moving forward on the project. Lewis County officials contracted with Cornell University to conduct a survey of NYS maple producers in order to determine the current and long term supply of bulk syrup that could be used to supply a new bottling facility. This report summarizes the main findings.

For organizational, environmental, and economic reasons, all of the data are being made available as linked documents on the web rather than printed in this report. The data are presented according to individual questions and variables and can be accessed by clicking on the relevant question(s). Where appropriate, the data are stratified according to the size of the maple sugaring operation, location based on one of the seven NYSMPA regions, and whether or not the respondent is a member of the NYSMPA. Readers can view detailed analysis for each question and variable by clicking on the appropriate question on the survey. This will save a great deal of paper and allow readers to easily find the data they are looking for.

Survey Methodology

Richard Stedman and Michael Farrell served as co- Principal Investigators on the project while the Human Dimensions Research Unit at Cornell handled survey administration. The survey was developed over a two month time frame that allowed for significant stakeholder input into the design and scope of questions asked. All members of the steering committee, the Board of Directors of the NYS Maple Producers Association, and several faculty and staff members at Cornell received a draft of the survey to provide comments. The feedback was helpful in fine-tuning the questions to make sure they were understandable and ensuring that the survey was comprehensive in covering all of the aspects relevant to this project.

In order to conduct a survey of 2,000 maple producers, we utilized two databases:

- (1) current members of the New York State Maple Producers Association (NYSMPA)
- (2) customer database provided by MaplePro, Inc.

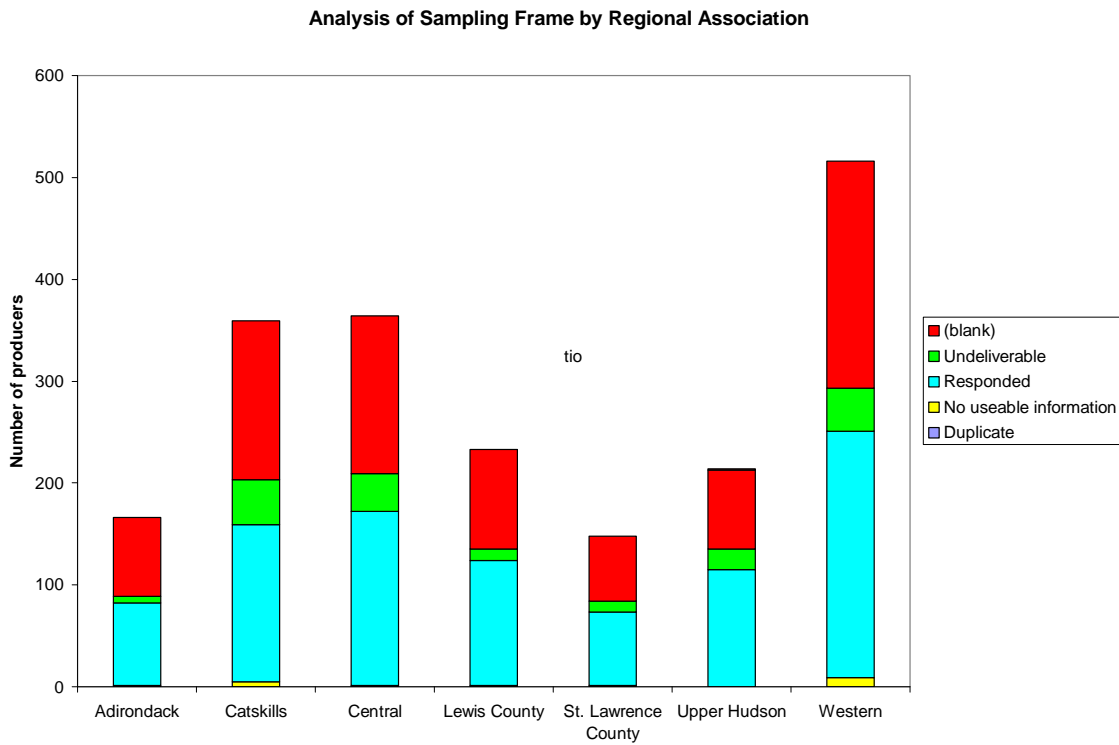
The lists were screened to eliminate duplicates, combine multiple contacts to just one mailing per sugaring operation, and delete any addresses that appeared to be invalid. These actions reduced our sample size to 2048. We then randomly omitted 48 names from the MaplePro database to achieve our target sample size of 2000.

The first surveys were mailed on November 13, 2008 and a reminder letter was sent on November 20. Those producers who did not respond within 2 weeks were mailed a second copy of the survey on December 4 while a final reminder letter was mailed on December 11 to people who still had not responded. Data entry began in early December and continued until mid-January when the last completed surveys arrived.

Sampling Frame Analysis

Of the 2,000 questionnaires that were mailed, we received 958 completed questionnaires while 172 were undeliverable, resulting in an adjusted response rate of 52%. Figure 1 below presents the results of the sampling frame according to the NYSMPA Regional Association of the addressee. Please refer to Appendix 1 for a detailed analysis of the sampling results by county.

Figure 1. Analysis of the sampling frame results according to NYSMPA Regional Association.



The MaplePro database turned out to be much less reliable than we had expected. Even after screening the database to delete any bad addresses and having been assured that the database was regularly cleaned by the management at MaplePro, we still wound up with 172 undeliverable surveys. There were also 58 who replied saying that they never

produced syrup, so it is unclear how they got on MaplePro's mailing list. The silver lining in using the MaplePro database is that it also generated responses from 222 producers who no longer produce syrup, providing us with excellent data on why they stopped sugaring and what might entice them to get back into the business. Given the nature of the database, we had expected to find some former producers and included questions 1a, 1b, 1c, and 1d to capture this valuable information.

Appendix 2 contains a detailed comparison of the results of our survey with the 2007 Census figures for NY, just released in February 2009. Overall we received responses from 628 current producers representing 804,176 taps whereas the Census identified 1,313 producers in NY with a total of 1,342,165 taps. If the 2007 Census represented a "true census" of all maple producers in NY, we would be missing 52% of the producers and 40% of the total taps. However, it is common knowledge that the NASS statistics underestimate the actual level of syrup production in NY. A county by county comparison of the data revealed that there are 6 counties where we had an additional 40 producers representing 43,423 additional taps not captured in the Census. Furthermore, there are also many instances where we sampled producers that are not included in the NASS database and NASS sampled producers that are not in ours. Further analysis and comparison of the NASS Census data with our survey will lead to better estimates of the entire maple industry in NY.

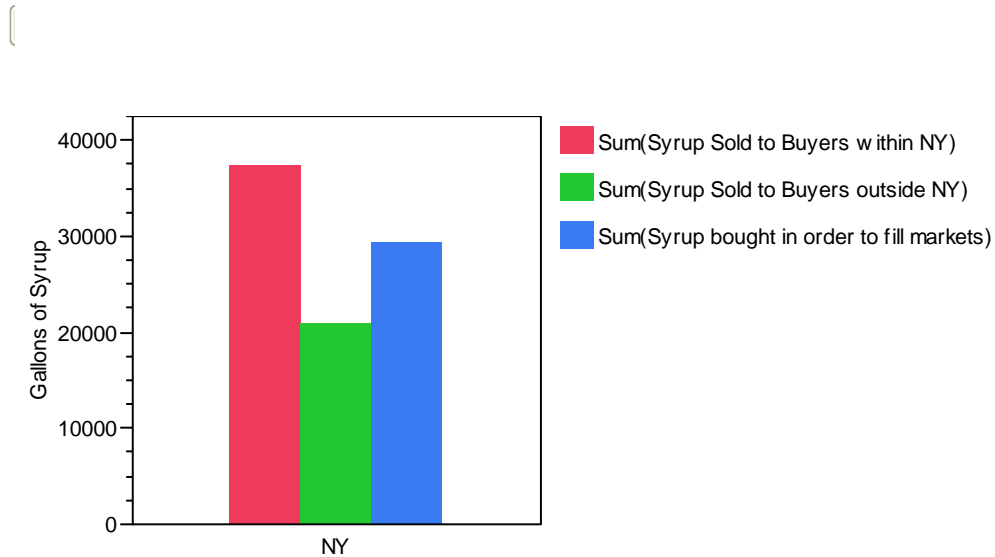
Since the 2007 Census is missing a substantial amount of the producers and taps in NY, it is not possible to expand and extrapolate our results for the entire state based on this comparison. However, based on conversations with industry leaders, a "best guess" is that there are roughly 3,000 producers in NY who put out at least 2,000,000 taps each year. In order to estimate the total volume of syrup that may be available for a central bottling facility in NY, a conservative approach would be to double the figures presented in this report whereas an optimistic approach would be to triple them.

A summary of the major findings is presented in this report. In most instances we present state level data in this main report and readers can view stratified data via the web-based document.

Bulk Syrup Availability

The main objective of our survey was to determine the amount of syrup produced in NY that could be used to supply a new centralized bottling facility. In order to determine this figure, we asked producers how much syrup they typically sell to buyers located both within and outside of NY, as well as how much bulk syrup they normally buy in to fill their own markets. As noted earlier, in order to estimate statewide figures from our survey, we are using both a conservative approach of doubling and a more optimistic approach of tripling the survey results. Based on the results of this survey, there are roughly 75- 110,000 gallons of bulk syrup sold to buyers located within NYS and an additional 42-63,000 gallons sold to buyers outside the state in a typical year.

Figure 2. Bulk Syrup Transactions in NY. Based on a sample of 637 producers. Totals for the entire state are 2-3 times the levels presented in this graph.



The quantitative survey results presented above do not incorporate the ideas and activities of several key players in the NY bulk syrup market, including Bascom’s Maple Farm, Butternut Mountain Farm, Maple Grove Farms of Vermont, Adirondack Maple Farms, Parker Family Maple Farm, Schoolyard Sugarbush, or the Lewis County Maple Cooperative. The relevance and role of these firms are discussed in detail in the following paragraphs.

Bruce Bascom is probably the largest buyer and seller of pure maple syrup in the US. We have been very fortunate to have several conversations with Mr. Bascom during the course of this study, which has been invaluable to understanding the dynamics of the bulk syrup market and potential supply of NY syrup for a new bottling facility. Bascom's usually purchases ~60,000 gallons of bulk syrup coming out of NY each year. He also estimates that another 60-80,000 gallons of NY bulk syrup is sold out of state to buyers in Vermont, Pennsylvania, Ohio, and Wisconsin. Whereas our survey results may only indicate that 40- 60,000 gallons are sold out of state, Mr. Bascom knows more about the bulk syrup market than anyone else in the US; his insights should not be taken lightly. It is worth noting that since Mr. Bascom does not support this project, he is unlikely to overestimate the amount of bulk syrup leaving the state, as this is one of the main reasons to develop a new bottling facility in NY. It is also worth noting that much of the syrup going to Bascom's is lower grades, off-flavored and commercial syrup. Bascom's has developed tremendous markets for this syrup, which is not suitable to be packaged in table-grade containers. Mr. Bascom hypothesizes that most of the high-quality NY bulk syrup stays within the state while all of the "junk" gets shipped to New Hampshire.

David Marvin owns and operates Butternut Mountain Farms in Morrisville, Vermont. They purchase a tremendous amount of syrup, almost all of which is done on a 'contract' basis. Marvin has a loyal following of producers who agree to sell him their bulk syrup every year. Marvin has developed long-term relationships with his suppliers by always paying a fair price, even when market conditions have resulted in lower bulk prices for most producers. Butternut seems to be catering to the national high-end gourmet market with high consumer prices allowing for high producer prices. It would be difficult to convince producers that have been selling their syrup to Butternut Mountain Farms to sever those ties in order to supply a new bottling facility in NY.

Haven King heads up syrup procurement for Maple Grove Farms in St. Johnsbury, Vermont. Maple Grove is the largest bottling and distribution facility for maple syrup in the US, purchasing 15 million pounds of syrup per year. Being located so close to the Canadian border, they procure the vast majority of their syrup from Quebec. In a typical

year they normally only purchase about 8,000 gallons of bulk syrup from NY. However, in 2008, as a result of a syrup shortage in Canada, high production in NY, and offering record prices of \$4/lb for all grades of syrup, Mr. King noted that they bought at least 3x their normal level of syrup from NY. Maple Grove Farms already has many sizeable, established customers, including the Cracker Barrel restaurant chain, which is the largest buyer of pure maple syrup in the world. In order for Maple Grove to maintain these accounts, they are willing to pay very high prices in order to lure producers to sell them their bulk syrup. The ability of established facilities to offer these high prices during times of shortages would certainly impact the ability of a new bottling facility in NY to procure syrup during difficult times.

Adirondack Maple Farms is the largest producer, buyer, and seller of maple syrup in NY. The owner, Bruce Roblee, is strongly opposed to this project and did not fill out the survey we sent him. However, in personal conversations he indicated that he buys roughly 100,000 gallons of syrup a year in order to fill his wholesale and retail markets. Mr. Roblee travels throughout the northeast to secure his syrup supply and even has full tanker loads of syrup delivered from Quebec. It is not clear how much of his syrup comes from NY, but it is certain that a new bottling facility would directly impact his business. Adirondack Maple Farms has drop-shipment contracts with Price Chopper and other NY grocery stores and Mr. Roblee has expressed his concerns to legislators and government officials involved in this project. While it is unlikely that his objections alone could halt public support for the project, his concerns should be addressed. Should this project move forward it would be beneficial to try to work with Mr. Roblee to exert the least amount of negative impact on his business as possible.

The Parker Family Maple Farm is also concerned about the impact of the proposed facility on their business (they too did not fill out the survey). Their information and attitude towards this facility is critical to understanding the feasibility of securing syrup from northeastern NY. They are the second largest producer in the Northern NY region and also buy and sell tremendous amounts of bulk syrup. The Parkers operate as a contact buyer for Bascom Maple Farms and send roughly 14,000 gallons of bulk syrup to

New Hampshire each year from Clinton county and surrounding areas. It would certainly be difficult, though not impossible, to divert this syrup to a new bottling facility in NY. However, as previously mentioned, a lot of the syrup that goes to Bascom's would not be suitable for packaging in retail containers. There are also other NY producers who contract to purchase syrup for Bascom's such as Randy Sprague and other dealers for the Leader Evaporator Company.

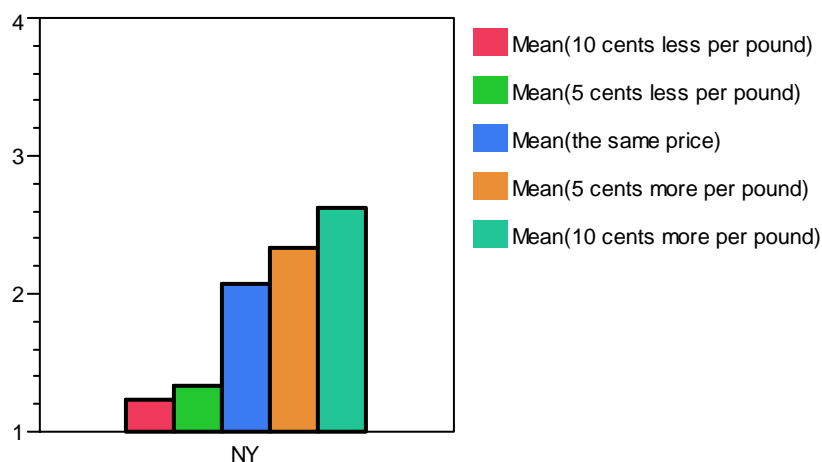
Dan and Don Weed operate Schoolyard Sugarbush in the Finger Lakes region. They are strongly opposed to this facility and did not fill out the survey. In conversations with Don, he indicated that they have made substantial private investments in setting up a new automated bottling system. They also see a great opportunity to fill the growing markets for maple syrup and are opposed to a government supported facility competing with their private business. They already procure a significant amount of bulk syrup and will substantially increase their purchasing trends if/when their bottling facility comes online. The Weeds could provide substantial competition for bulk NY syrup in the future, especially in the central NY region. They are organic producers themselves, and may continue to function and expand in this niche market.

Finally, we intended to survey as many maple producers as possible in Lewis County, including all of the members of the Lewis County Maple Cooperative (LCMC). However, it proved to be extremely difficult to generate a list of all producers and we did not receive the database of cooperative members until well after the survey had been implemented. As indicated during one of the steering committee meetings, the LCMC has pre-existing loyalties to syrup buyers located outside of NY and would be reluctant to stop this arrangement in order to supply a new bottling facility. In order to maintain a viable facility, it must have the broad support of local producers. This seems to be a large obstacle to future developments of a bottling facility in Lewis County.

Pricing Requirements

Securing syrup requires a tremendous amount of capital to buy bulk barrels from producers in April and May once the season has ended. Many producers are used to selling a good share of their syrup right away in order to get cash during a time of the year when other farm income is not readily available. In order to gauge how important price is when determining where to sell their syrup, we asked producers how likely they would be to supply a new centralized bottling facility if they were offered (1) 10 cents less per pound; (2) 5 cents less per pound; (3) the same price; (4) 5 cents more per pound; or (5) 10 cents more per pound. The results of this question can be seen in Figure 3 below, which presents the mean likeliness value for each pricing scenario. More detailed contingency tables are presented in the web report to indicate the wide range of responses for each pricing scenario.

Figure 3. Likelihood of producers to supply bulk syrup to a new centralized bottling facility in New York. The question was based on a 4 point scale; (1) very unlikely (2) somewhat unlikely (3) somewhat likely (4) very likely.



One of the most surprising findings in the survey is the reluctance of producers to supply syrup to a new bottling facility, even if they are offered more money for their syrup.

Not surprisingly, the vast majority indicated that they would be very unlikely to supply the new facility if they were offered less money for their product. However, even when offered the same price or 5 cents more per pound, the results still indicated a tendency among producers not to supply the facility with bulk syrup. It was not until producers were offered 10 cents more per pound that the average likeliness score of 2.6 exceeds the mean value of 2.5. This apparent unwillingness to supply the new facility may have a lot to do with the uncertainty and lack of knowledge regarding the new facility. It may also have to do with pre-existing loyalties to sell bulk syrup to the people who they have been selling to for many years. However, if and when the proposed facility becomes operational and producers become familiar with it, we believe that they would be much more willing to sell their bulk syrup there.

Thoughts & Attitudes of Maple Producers Towards the Proposed Facility

Even though there may be enough syrup produced in NY in order to theoretically supply a centralized bottling facility, the willingness of producers to support and supply the facility will ultimately determine the long-term feasibility. Given this situation, we asked maple producers a series of question to gauge their thoughts and attitudes regarding the proposed bottling facility and how they think it may affect their current business practices. Producers were asked to evaluate twelve statements about the facility, ranking each statement on a 5 point scale: (1) strongly disagree, (2) slightly disagree, (3) neutral, (4) slightly agree, and (5) strongly agree. The mean results for each statement can be seen in Figure 4 on the following page. Detailed contingency tables for each statement stratified according to number of taps, location, and membership in NYSMPA are available on the web document.

Figure 4. Mean response for twelve statements regarding the proposed bottling facility. Each statement is ranked on a 5 point scale; (1) strongly disagree, (2) slightly disagree, (3) neutral, (4) slightly agree, and (5) strongly agree.



The following pages will address each one of these statements in detail.

V124. Constructing a large scale bottling facility in NYS is a good idea.

On average, producers tend to agree with this statement, achieving a mean score of 3.31. Larger producers are also much more likely to think that the proposed bottling facility is a good idea than the smaller producers. This makes intuitive sense in that the larger producers understand the difficulties in filling large orders and bottling substantial amounts of syrup. It should also be noted that there is still significant opposition to the proposed plant, with many more respondents strongly disagreeing with this statement than just disagreeing. Not surprisingly, the greatest support for the bottling facility comes among the producers in Northern NY. In fact, not a single producer from St. Lawrence County thinks the bottling facility is a bad idea.

NYSMPA members are more likely to support AND oppose the proposed facility. These producers are more engaged in their businesses and industry developments, so they are more opinionated on the issue and have a much smaller percentage of neutral responses.

However, the greatest majority of all responses is in the neutral category, leading one to believe that producers have not thought about this enough or been given enough information to develop an informed opinion.

V125. This facility should be privately and independently owned.

By far the vast majority of producers are neutral on this point, which is understandable given the fact that they don't know much about the proposed facility. Generally speaking many more producers agree with this statement than disagree, achieving a mean score of 3.61, the third highest of all 12 statements. This is especially true among large producers that worry about a government-sponsored facility competing with their own business. There was not much regional variation in response to this question. NYSMPA members were much more likely to agree with this statement than non-members and had a significantly lower percentage of neutral responses, indicating that they are more informed and opinionated on this matter.

V126. I would be more likely to use this facility if it were a producer-owned cooperative.

It is not clear what the ownership and management structure for the proposed facility will be. If it functioned as a producer-owned and operated cooperative, it would likely be much easier to secure local syrup from its members. There is promising news that the larger producers were much more likely to agree with this statement than smaller producers. St. Lawrence County, Lewis County, and the Adirondack Maple Producers Associations are also the most likely to agree. Not surprisingly, these are the three regions that voiced the strongest support for the idea, as evidenced in V124. NYSMPA members were more likely to disagree with this statement than non-members.

V127. State or federal funds should be used to help develop the facility.

This statement resulted in a mean score of 2.71, showing that on average that producers tend to disagree with the idea of using government money on this project. The contingency tables paint a much clearer picture of the results, as the vast majority who disagreed with this statement “strongly disagreed”, whereas among those who agreed, more of these respondents “slightly agreed”. This reaction likely has a lot to do with the general hostility amongst producers towards government involvement in the maple industry. There is also a strong contingent that feels this facility could negatively impact their own private business and are extremely vocal in their opposition of the proposed facility. It is highly unlikely that the new facility could procure bulk syrup from these producers.

V128. This facility would help promote NYS maple products

Not surprisingly this statement received the highest average score of 3.84, although it would be remarkable that anyone could disagree with it. The underlying mission of the proposed facility is to promote NYS maple products and get NY maple into grocery stores and large distributors. The 68 producers that disagreed with this statement must not have understood this aspect and would therefore be less likely to supply their bulk syrup to the facility. Once they actually see the impact on the industry, we suspect that the ones who disagreed may eventually change their mind.

V129. This facility should target large grocery chains and international distributors.

This statement also achieved a high mean score of 3.67, indicating strong support among the producers. Indeed this is one of the underlying assumptions of a proposed facility- to get NY syrup into large grocery chains and international distributors. If the mission were to diverge from this guiding principle and creep into markets typically supplied by

individual private producers, there would likely be less support for the facility and fewer producers willing to supply it with syrup.

V130. A bottling facility in NYS could lower my transportation costs for bulk syrup.

One of the hopes of establishing a new syrup bottling facility in NY is that it could reduce the cost of transporting syrup that is currently being shipped to bottling centers in other states. However, only ~20% of the producers agreed with this statement, so that does not seem to be a major selling point. In fact, conversations with Bruce Bascom and David Marvin indicate that very little of the bulk syrup is transported individually to these large buyers. Rather, syrup is amassed at central locations throughout the state and then delivered by tractor trailer load to Vermont and New Hampshire. Mr. Bascom has indicated that it only costs ~3 cents per pound to transport syrup from NY to his facility in NH. Many producers also enjoy taking the trip to Bascom's in order to sell their syrup at the Spring Open House in the beginning of May each year. These producers have an opportunity to attend seminars and workshops during the 2 day event, network with other maple producers, and receive a 10% discount on equipment sales when they exchange their syrup for equipment. Receiving compensation for their syrup without having to show as much income is a bonus for many producers. When fuel costs rise to the levels seen in summer 2008, this could change the situation and focus more attention on keeping transactions as local as possible. However, with gas prices currently relatively cheap, having a bottling facility closer to the producers does not seem to be an important factor in where they are likely to sell their syrup.

V131. The products from this facility will compete with my business.

Nearly 40% of the producers who have at least 1,000 taps agreed with this statement. NYSMPA members are also much more likely to agree, as 38% of members agreed vs. only 20% of non-members. This may explain why there is such strong opposition among

some of the producers in NY. However, considering that the facility would target markets that do not have local producers' syrup, there is obviously much confusion and unnecessary concerns within the producer community. If this fact was made clear to the producers, we suspect there would be much greater support for the facility. If they did not fear that the new bottling facility would compete with their business, the producers would be much more likely to sell their syrup to it.

V132. I may be interested in having this facility custom package my syrup for my own distribution channels.

Custom packing would add another dimension to this facility that could make use of equipment and bring greater utilization and profit margins. Given the fact that most of the maple syrup produced in NY is sold in retail or wholesale outlets, if producers decided to use this facility for custom packaging, it could result in a tremendous amount of syrup being processed there. However, only ~ 10% of producers agreed with this statement, so there does not seem to be much interest at this point. This could change if examples of how this works get publicized and distributed among the producers. Most producers already have all of their own bottling equipment and do not properly value their time spent bottling- therefore they may not realize the economic advantages of custom packing. It is possible they could have it bottled cheaper at this facility, thus freeing up more time to spend on other activities in their maple operations, including marketing their syrup, producing value-added products, and properly managing their sugarbush.

V133. This facility will have no impact on my business.

More producers agreed than disagreed with this statement. Not surprisingly, smaller producers were more likely to agree with this statement than the larger producers. While there were not any significant differences between the regions, non-members were more

likely to agree than members of the NYSMPA. Generally speaking, we do not think this will have much impact on the majority of maple producers in NY. If it operates as a cooperative, then it will certainly have an impact on any producer who joins. If it operates as a private enterprise, it will only have a strong immediate impact on those who supply it with syrup. However, over time, this facility could have a drastic impact on the NY maple industry, building the brand image and bringing higher prices to producers throughout the state.

V134. This facility will create more competition for bulk syrup.

Roughly half of the producers agreed with this statement while a very small percentage disagreed. Given the fact that more bulk syrup is bought by producers in order to fill their own markets than is shipped out of state, it is not surprising that many producers are concerned about the impact on bulk syrup prices and availability that a new bottling facility may have. The larger producers are more likely to agree with this statement, as nearly 70% of those with > 2,000 taps agree whereas only 25% of the hobby producers with less than 100 taps agree. In reality, it's hard to disagree with this statement. There is currently a limited supply of bulk syrup produced in NY- if a new bottling facility came into the market, it would certainly create more competition for the syrup, driving up prices on the local level.

V135. This facility would lead me to increase my own production.

This is one of the driving forces and goals of creating a new bottling facility. In order to maintain the viability and profitability of a large scale bottling facility, NYS will have to increase its production of maple syrup. We certainly have the additional capacity to expand production and it is possible that creating the new bottling facility could spur new growth. If additional competition for bulk syrup leads to higher prices, then many producers may want to expand for two reasons

- (1) Producers who sell bulk syrup will be paid more for their efforts and may want to increase production to take advantage of higher prices
- (2) Producers who have to buy bulk syrup may want to increase their production so that they don't have to pay such high prices for the syrup

Unfortunately only 25% of the respondents agreed with this statement. However, if 25% of the producers expanded their production, that would be a huge boon for rural economies and long-term bulk syrup supply for the new bottling facility. The size class that had the highest agreement score was the 1,000-1,999 tap range. These are the medium sized producers that already know how to make a lot of syrup and could probably expand if they had more time or got paid more for their products. There was not any significant difference between regional associations or members of the NYSMPA.

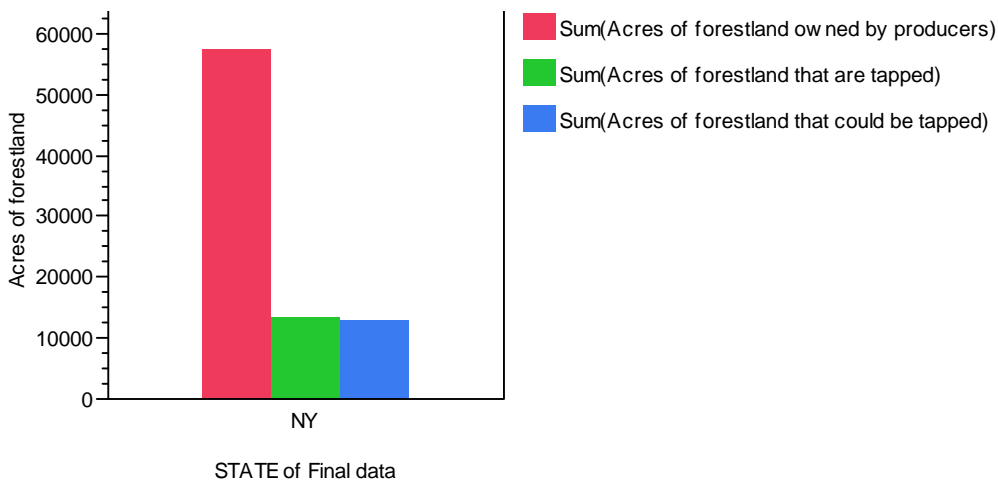
V136. It is important that I sell my bulk syrup in New York State.

Larger producers were much more likely to agree with this statement than smaller producers, which is good news for the prospects of securing NYS bulk syrup for a new centralized bottling facility. Lewis and St. Lawrence counties showed the strongest support for wanting to keep their syrup within the state. NYSMPA members were also much more likely to agree with this statement, which is expected considering that they are more likely to take pride in their home state, as evidenced by joining the state producer association. Having state loyalty will be crucial to securing syrup over the long-term, as price fluctuations as seen this past year could entice some producers to sell out of state in order to earn high returns.

Growth Potential Among Existing Producers

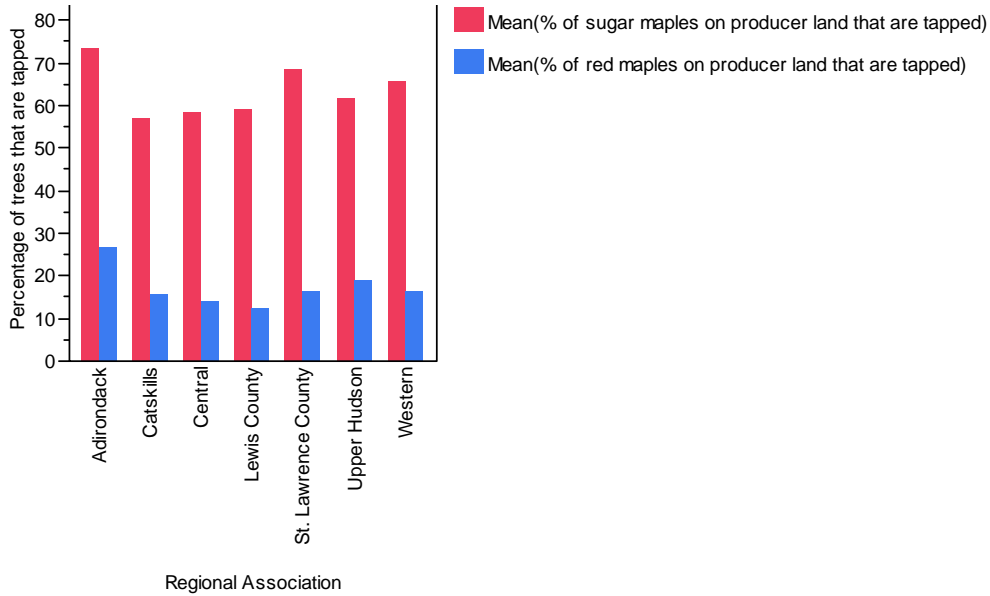
It seems clear from the survey results that in order to maintain a steady supply of syrup in the long-term, NYS must increase its overall production of syrup. This section outlines the growth potential of the NY maple industry based solely on the existing tree resource on producers’ forestland. Figure 5 below shows that among existing producers, only half of the available acreage is currently being tapped, presenting an incredible opportunity to increase production in NY.

Figure 5. Landuse data for forestland owned by maple producers.



Although producers indicated that some of their acreage may possibly be tapped, this land does not necessarily contain as many maple trees per acre as the existing sugarbush. Furthermore, some producers currently do not tap the red maples within their existing sugarbush. Thus, we decided to include question 14 in order to get a better understanding of the percentage of sugar and red maples on a producer’s property are currently being tapped, with the results displayed in Figure 6 on the following page, stratified by county.

Figure 6. Percent of sugar and red maples on producer land that are currently tapped. Data is stratified by county.

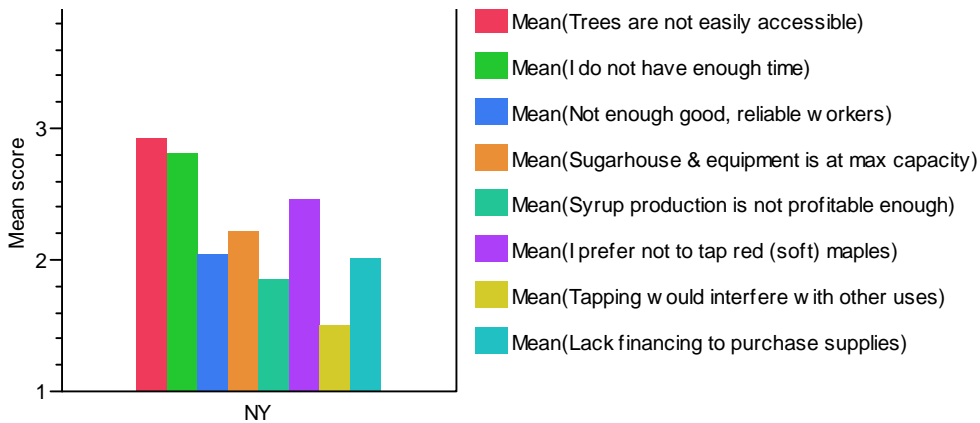


The results clearly indicate that producers are utilizing most of the available sugar maples but tend not to tap red maples. This presents a tremendous opportunity to expand production, as red maples can produce abundant sap and high-quality syrup, even if it is not as sweet as the sugar maple sap. Red maples are becoming the most dominant hardwood species in much of the northeast and there are more red maples (151 million potential taps) growing in NY than sugar maples (138 million potential taps). If producers adopted energy saving technology such as Reverse Osmosis, they would be able to remove most of the water before boiling, thereby making sap sugar concentration not as important. Greater utilization of red maples is one of the easiest ways to increase production in NY.

Barriers to Expansion

Although it is clear that producers have additional acreage and trees that they could tap on their own property, there are many reasons why they are fully utilizing their maple resource. The survey included a series of questions to determine what the barriers to expansion are for existing producers. Question 15 listed several possible options for why the producers are not tapping all of the trees on their own property; they were asked to rank them on a 4 point scale, with (1) definitely not, (2) probably not, (3) probably yes, and (4) definitely yes. The results can be seen in Figure 7 below.

Figure 7. Reasons why producers are not tapping all of the maple trees on their own property.



As seen above, not having enough time and not being able to easily access the trees are the two main factors limiting the potential to expand production in NYS. The next greatest obstacle is a preference among many sugarmakers to not tap red maples. As previously discussed, although red maples tend to have lower sugar content and bud out earlier than sugar maples, they are still an acceptable species for syrup production. If producers were to break with tradition and start utilizing red maples, we may experience a spike in syrup production. Many producers also noted that their sugarhouse and

equipment was at maximum capacity. If any of these producers do not currently have an RO, they could easily expand their production potential 4-5 times by adopting this technology.

Strategies to Increase Production

We conducted this survey under the assumption that there may be enough syrup to maintain the smallest size facility and that NY must increase production to allow for expanded operations. Given this scenario, we included a series of questions that would help shed light on what NY can do to help its maple industry grow.

Agricultural Assessment

One of the few policies that NY has to encourage production of maple syrup is the agricultural assessment for sugaring operations. Not only can producers qualify for substantial tax savings if they produce at least \$10,000/year in annual gross income from all agricultural operations, but landowners who lease forestland to these producers can also qualify for an ag assessment. We asked producers if they qualified for an ag assessment and if so, what their estimated annual savings were. Of the 612 producers who answered this question, only 142 (23%) stated that they had ag assessment, 82 (13%) were unsure, and 388 (63%) stated that they did not. It would be very difficult to gain an agricultural assessment without at least 1,000 taps, so it is not surprising to see that only 6% of those producers with < 100 taps and 17% of producers with 100-999 taps have ag assessment. These are most likely farmers who have other agricultural operations of which maple is only a very small piece of their annual income.

A producer with at least 1000 taps should be able to qualify for ag assessment, so it is surprising that only 27% of producers with 1,000-1,999 taps stated that they had ag assessment. Perhaps the most staggering finding is that only 43% of producers with at least 2,000 taps have an ag assessment. If a producer has at least 2,000 taps and does not

gross at least \$10,000/year from syrup sales, then he/she is either obtaining very low yields or selling at very low prices. Since a great deal of maple production occurs in the “cash economy” and is not reported on annual income taxes, it may be the case that some producers would rather forgo ag assessment in order to avoid paying the full income taxes on their earnings. It should be noted, however, that the tax savings from ag assessment can be substantial and proper accounting can show very low net profits in maple production, even when gross revenues are high. It is also shocking that nearly ¼ of these large producers were not sure if they had ag assessment, representing a significant opportunity to educate producers about the benefits of ag assessment.

While there are not any major differences based on regional association, it is interesting that NYSMPA members are twice as likely to have agricultural assessment as non-members. NYSMPA members are significantly larger in size and should be more informed about the advantages of ag assessment. However, the data also reveals that NYSMPA members are more informed on this topic as well. Among large producers with $\geq 2,000$ taps, 40% of non-members were not sure if they had ag assessment vs. only 12% of NYSMPA members.

Why does this matter and how can agricultural assessment help grow the maple industry in NY? First, it provides an incentive for smaller producers to get bigger in order to qualify for the tax savings. Second, by lowering taxes it makes the sugaring enterprise more profitable, thereby helping to ensure that existing producers will stay in business. Finally, it can entice new producers into the business as a means of lowering their property taxes in one of two ways; (1) they can become sugarmakers themselves or (2) they can lease their forestland to an existing producer. The catch is that the existing producer must already qualify for agricultural assessment themselves. Since less than half the producers who could qualify for agricultural assessment actually have this benefit, it limits the effective ability of these producers to lease additional taps from neighboring landowners.

Reverse Osmosis

Utilizing a Reverse Osmosis unit (RO) is the most cost-effective and efficient way to increase the syrup-production capacity of an existing sugarhouse. ROs can remove up to 80-90% of the water in sap before it is boiled in the evaporator, resulting in substantial time and fuel savings. Overall, less than 20% of producers use ROs, but this figure is somewhat misleading, as ROs usually do not become cost effective until a producer has at least 1000 taps. Among producer with 1,000-1,999 taps, approximately 25% have an RO whereas 50% of the producers with at least 2,000 taps have an RO. Producers that utilize ROs tend to be more sophisticated and willing to adopt new technologies. It is encouraging that half of the large producers use ROs, but this also means we are only halfway there in terms of increasing the efficiency and effectiveness of the NY maple industry. Among the producers with > 2,000 taps, 56% of those that belong to the NYSMPA have an RO vs. 41% of non-members. As seen in other areas as well, membership in the NYSMPA is highly correlated with adoption of current technologies. Regions of NYS also differ in their use of ROs. Among the producers with > 2,000 taps, only 11% of the Lewis County and 36% of St. Lawrence County producers have an RO compared with 50% in the Adirondacks, 60% in Western NY, and nearly 70% in the Upper Hudson, Catskills, and Central NY regions.

It is worth noting that ROs generally require a heated space and electricity during the sugaring season. Whereas new technology will be able to power ROs without a ready source of electricity nearby, this is currently a limiting factors for many producers.

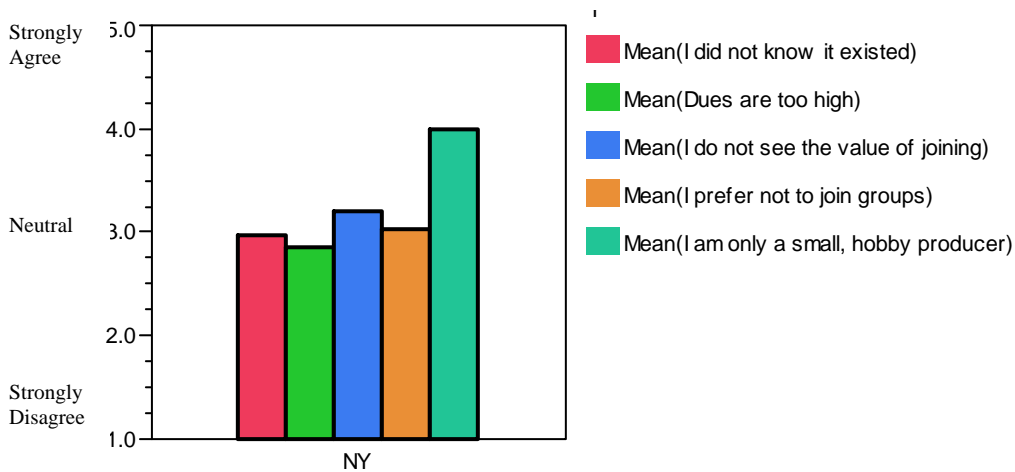
Membership in NYS Maple Producers Association

The survey results clearly show the positive correlation between membership in the NYSMPA and being more engaged and informed about current technology and the maple industry in NY. Although correlation does not imply causation, there are many benefits of membership that could lead to this outcome. Being involved with the NYSMPA keeps producers up to date on the latest research and developments through subscription to the

Pipeline and Maple Digest. Members stay informed about maple workshops and schools and are twice as likely to attend the NYS Maple Conference in Verona. There is also a strong social component to being a member, as it allows for networking with other maple producers and the greater flow of ideas and resources.

We decided to ask producers who are not members why they have not joined. Producers were asked to rank five possible reasons on the following scale; (1) strongly disagree, (2) slightly disagree, (3) neutral, (4) slightly agree, and (5) strongly agree. The mean results are seen in Figure 8 below with more detailed contingency analyses stratified according to number of taps and location available via the web report.

Figure 8. Reasons that producers have not joined the NYS Maple Producers Association.



While all of the possible reasons that we had listed found some agreement among producers, the one that elicited the greatest response was “I am only a small, hobby producer”. If these producers were to join the NYSMPSA and become more engaged in the industry, they may be more likely to expand their businesses. Maple producers talk about getting bit by the “maple bug” and catching the “maple disease”. They are referring to the fact that once you start producing syrup, you want to keep doing it and continue to

expand your operation. This is especially true when producers are exposed to new technology and ideas that allow them to make syrup more efficiently and effectively. If the NYSMPA was to offer incentives for small producers to join, this may lead to a stark increase in membership and corresponding growth of the industry.

The NYSMPA must also do a better job of advertising itself and showing the value of membership among producers. Of the 212 producers that responded to this question, 46 (22%) indicated that they did not even know it existed. While it would be difficult to convince those who prefer not to join groups to sign up, the ones that felt dues were too high or that they do not see the value of joining may be more easily swayed. This report does not contain any great ideas on how to achieve this; it merely stresses the importance of doing so.

The situation is quite different north of the border. All of the producers in Quebec must belong to the Federation of Maple Producers and contribute a significant percentage of their annual revenues to the group. Their strong organizational skills and collective marketing and has paid dividends for the entire maple industry. NY producers would be wise to learn lessons from the Quebec producers, adopting the strategies that benefit the industry while avoiding the unnecessary pitfalls.

Tapping on State Land

In Question 33, we asked producers about the future of the maple industry in NY. They were asked to rank ten statements on a 1-5 scale with (1) strongly disagree, (2) slightly disagree, (3) neutral, (4) slightly agree, and (5) strongly agree. The last statement reads as follows “Not being able to tap state forestland will limit the growth of my business”. Less than 20% of the respondents agreed with this statement, as there are many producers who do not wish to expand as well as many who do not have any state forestland close to their sugaring operations. However, this still represents roughly 100 producers that would be able to expand their production if state land was more readily available for tapping. Larger producers are much more likely to expand their operations if state land

was made available for tapping, as nearly 30% of producers who have at least 1,000 taps agreed with the statement that “not being able to tap state forestland will limit the growth of my business”.

We asked about this topic because there is very strong interest among some legislators to open up more state land for tapping. Quebec allows significant tapping on Crown land and Vermont is currently in the process of redoing their laws and guidelines to make more public land available for tapping. New York has the most potential taps of any state or province, but nearly 30% occur on state land. There are roughly 73 million potential taps in the Catskills and Adirondacks which would require a constitutional amendment to allow tapping. There are another 25 million potential taps on state forestland that just need better cooperation from the DEC to allow for tapping to take place. For NY to really grow its maple industry, it must reconsider these policies to make way for large scale sugaring operations on state owned land.

Vacuum Tubing Systems

Installing a new vacuum tubing system is the most cost-effective way to produce more sap out of an existing sugarbush that is currently being tapped with buckets or gravity-based tubing. Vacuum tubing systems can achieve 2-3 times the normal yield of a bucket or gravity based tubing system. Vacuum tubing requires a greater initial investment in time and materials to set up, but once it is operational, the payback period is very short, sometimes less than one season.

In order to determine the use of vacuum tubing among producers, we asked them to identify their sap collection practices in Question 2, seen below:

2. How many taps, using what method, do you put out in a typical year? *(Please fill out the chart below)*

	# of Taps on Buckets	# of Taps with Gravity Tubing	# of Taps with Vacuum Tubing
On My Own Property			
On Leased Property			

Figures 9 and 10 shows the sap collection techniques implemented on producers own land and leased property.

Figure 9. Sap collection techniques used on maple producers own property, stratified by Regional Association.

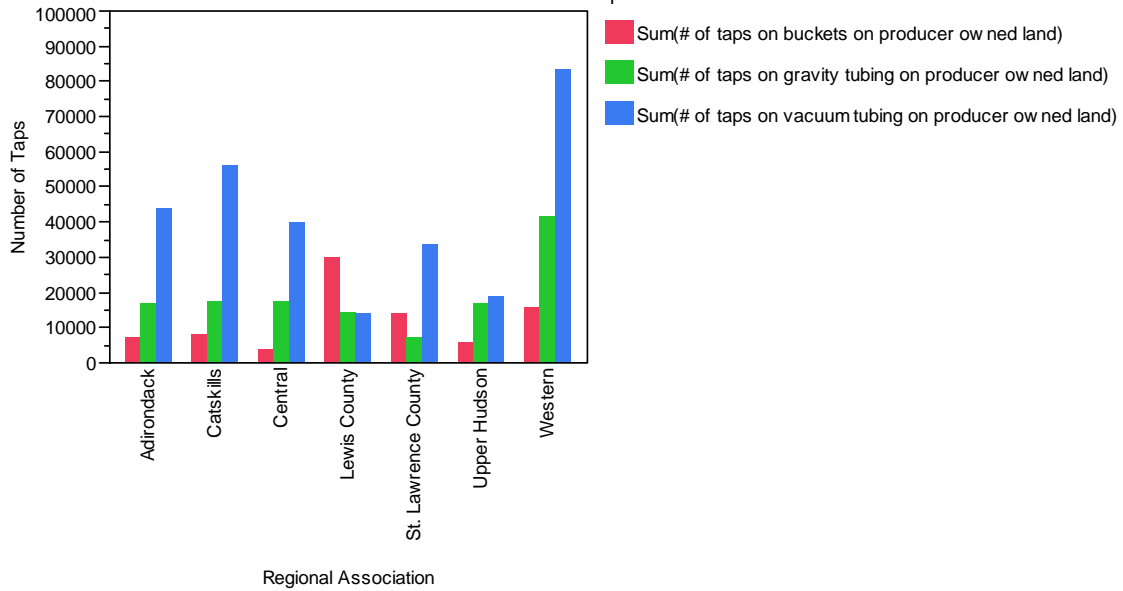
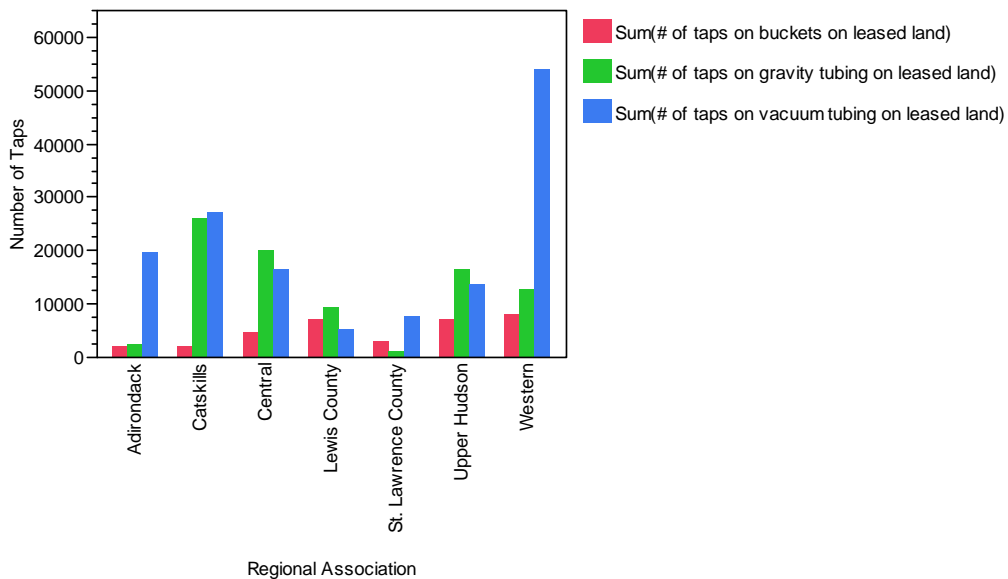


Figure 10. Sap collection techniques used by maple producers on leased property, stratified by Regional Association.



Whereas the majority of sap collected in NY does utilize vacuum tubing, there are still a large percentage of taps using buckets or gravity based tubing. We stratified these data according to Regional Association in order to show the stark differences between Lewis County and the rest of the state. Lewis County is one of the very few remaining areas of NY where producers still utilize buckets as their main collection mechanism. Although this adds to the unique character of the region and preserves the agricultural heritage, producers in Lewis County who forgo the use of vacuum tubing to keep their bucket tradition alive are missing out on substantial yield increases. It is interesting to note that buckets are even more prevalent on producers own land vs. leased land. This may be due to the fact that the producers who are interested in increasing production and expanding their operations by leasing trees from others are also more likely to want to utilize the latest technologies. However, it is also worth noting that gravity based tubing is still much more prevalent than vacuum tubing on leased land. Although vacuum tubing requires a greater initial investment, the increased sap production is well worth the time and money. Adding vacuum pumps to existing gravity based tubing systems and switching from buckets to vacuum tubing are two of the most effective ways to increase the level of syrup production in NY, especially in Lewis County.

Maple Task Force

The NYS Department of Agriculture & Markets has recently created a Maple Task Force to examine how the state can increase its overall production of maple syrup. Several of the issues discussed in this report are on the Task Force agenda, which includes:

- (1) working with NYSERDA to make financial assistance available for producers to purchase Reverse Osmosis units
- (2) working with the DEC to allow state forests to be opened for leasing to maple producers
- (3) supporting the research and extension efforts of the Cornell Maple Program to help develop the maple industry in NY

- (4) establishing a 2 cent per container voluntary donation to be used for research, education and promotion in the NY maple industry
- (5) modifying the grading laws in order to make NY maple products more competitive with those from other states and provinces

New York contains the most tappable maple trees of any state or province and has the largest markets for pure maple syrup in the world. With only 1 in every 200 maple trees in NY utilized for syrup production, there is tremendous room for expansion. The other aspect of our supply study will include a survey of NY landowners to determine what their thoughts and attitudes towards getting involved with maple syrup production are. There are approximately 500,000 landowners in NY who own roughly 90% of the potentially tappable maple trees. Understanding their thoughts and concerns is essential as we make plans to reach out to them on a more formal and strategic basis.

Although NY has the potential to drastically increase production, it is not yet a reality. Unless NY takes significant steps to increase its utilization, a new bottling facility will have to rely on out-of-state syrup in order to maintain operations. This can be done in order to get the business going and/or make up for shortfalls during the course of operation. However, procuring syrup from out of state is outside the original scope and intent of this project and should only be looked on as a means of supplementing syrup produced within the state. The ultimate goal of this facility is to create jobs and add value to bulk syrup within Lewis County. Until NY develops a large surplus of bulk syrup and its producers are willing to supply the new bottling facility with their syrup, it will be extremely difficult to maintain a profitable enterprise.

Conclusion

Even during the current economic downturn, there has never been a better time to be a maple producer in New York State. Demand is much greater than we have been able to supply and many producers are expanding their production to fill the growing local, national, and international markets. Lewis County officials wisely funded a feasibility study to determine if a new bottling facility would be able to add value to the maple syrup industry in NY. At this point it seems that the current availability of bulk syrup will only merit a very small facility; for the facility to grow and prosper in the future, Lewis County and all of NYS must reverse the recent trends and increase its total production of pure maple syrup.

Our survey confirms that NY maple producers already have well-established practices and relationships they use to get their syrup to market, whether in retail containers or long-standing arrangements for selling bulk barrels. The survey also confirms the nature of some of the issues and opportunities that will need to be considered if the project proceeds. The barriers that we see are the following:

- Established marketing channels and relationships. Some syrup may be easier to “re-channel” than others, especially the syrup from producers who do not have specific loyalty to a certain buyer and are only looking for the best price with the least amount of hassle involved in transporting and selling the syrup.
- Resistance from companies already running packaging operations.
- Lack of specific information about what this facility would be doing and its business arrangements.
- Producers in Lewis County tend to be using older production technologies than other areas of NY. This presents both a barrier and an opportunity. The barrier is if the traditions and preferences for older technologies persist, the potential to increase production in the region closest to the proposed facility will continue to be limited. This mindset even could limit acceptance of and use of the facility. On the other hand, technologies are readily available to boost syrup production in

Lewis County that could provide a syrup source not presently committed to existing market arrangements.

The survey results suggest what may be the more promising directions to take to move the project forward:

- Firm up support from larger, more progressive producers in Northern NY. These individuals are the most likely to see the business opportunities in a NY facility.
- Emphasize the advantages of NY-branded products and the “buy local” campaign.
- Focus on serving markets not easily accessed by individual producers.
- There is a preference for a privately or cooperatively-owned facility, rather than a publicly funded facility.
- Support educational programs that address the opportunities involved with agricultural assessment for sugarbushes.
- Support programs that increase utilization of the untapped maple resource. This represents a substantial source for new syrup input.
- Evaluate further whether potential competitors can become cooperators.