# Maple Syrup Digest

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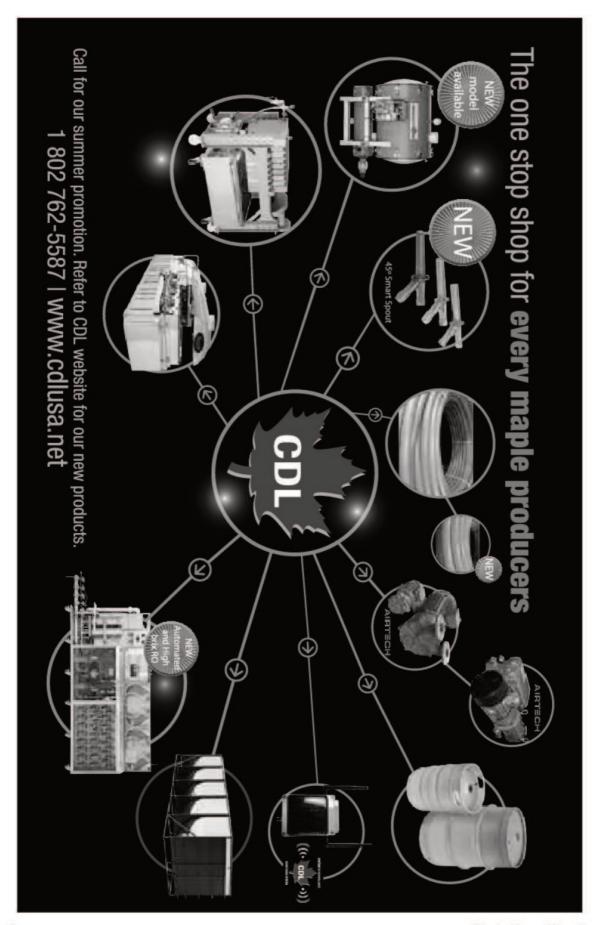
June 2016



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#### MAPLE SYRUP DIGEST

Official publication of the North American Maple Syrup Council
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## Greetings from your President



producing season is history and most of the usual cleanup is completed, it is time to prepare for the next year and to take stock of where our commodity is headed. By all anecdotal reports, the 2016 season is showing a record crop with sufficient syrup reserves to satisfy even the most demanding market. Favorable weather coupled with savvy and progressive producers who have employed the latest innovations to increase production have led to impressive per tap yields.

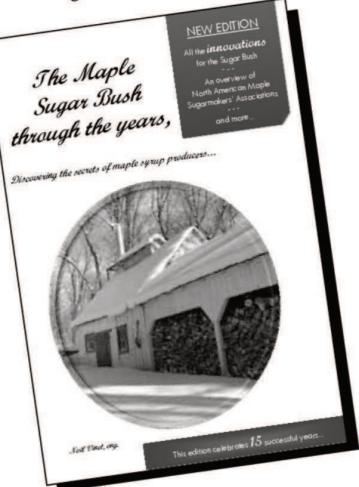
As we enjoy the benefits of this bountiful harvest we need to be mindful that much needs to be done in the areas of market research, domestic and international trade, forest health and equipment research and development. Researchers, manufacturers and every single maple producer has an important role to play in order to insure continued advancements in the industry and way of life.

On behalf of the Council Directors, I wish you a safe and pleasant summer.

Kind regards, Eric Randall, NAMSC President



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Cover photo: Yvon and Laurette Poitras, and Henry and Debra Marckres at the American Maple Museum in Croghan, New York. Yvon and Henry were inducted into the American Maple Hall of Fame on May 14.

## Contribute to the Maple Syrup Digest!

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- Photos of your sugarmaking operation.
- · Ideas for articles.

Send your contributions to editor@maplesyrupdigest.org.





The 2016 IMSI-NAMSC Annual Meeting & Maple Conference will be held October 26-29 in Burlington, VT. This event brings maple producers and processors, equipment manufacturers, and researchers. A trade show runs from October 26-28, seminars and workshops will be held on Friday, October 28, and tours of area maple producers will run on Saturday, October, 29. There are a range of registration options to fit your schedule, and online registration is available.

Details and registration: http://vermontmaple.org/2016

#### Schedule

Wednesday, October 26

Trade Show IMSI/NAMSC Committee/Board meetings Welcome dinner

#### Thursday, October 27

Trade Show Companion Tour NAMSC/IMSI Annual Meetings Technical Sessions / Research Presentations Taste of Vermont Dinner

#### Friday, October 28

Trade Show NAMSC Closing Session Technical Sessions / Research Presentations Awards Banquet

## Saturday, October 29

**Optional Tours** 





#### **Technical Sessions / Research Presentations**

## Managing For A Healthy Sugarbush In A Changing Climate

Jared Nunery, Orleans, VT County Forester.

## Maple Profitability Past, Present and Future.

Mark Cannella, Farm Business Specialist and Assistant Professor of Extension at the University of VT.

# Study On Plastic Residue Following Sanitation With Isopropyl Alcohol -- Final Results.

Luc Lagacé, Ph. D., Centre ACER, Maple products and processes division and Mustapha Sadiki, Ph. D. – Centre ACER, Analytical services division.

## It's Electric! Maple Evaporation Using Magnetic Induction Heating.

Francesco Aimone, Acerbev, LLC.

## Flavor Of Syrup From Ultra--High Reverse Osmosis Processing.

Abby van den Berg, Ph.D. Research Assistant Professor, University of VT.

#### Continued 3/16" Tubing Research.

Tim Wilmot, Researcher for Dominon and Grimm Inc. and retired University of VT Extension Maple Specialist.

#### Identifying Off--flavored Syrups.

Henry Marckres, Chief of Consumer Protection, VT Agency of Agriculture, Foods and Markets.

#### Creating And Implementing A Marketing Plan That Will Really Work To Improve Your Sales And Profitability.

Mark Harran, President of the Maple Syrup Producers Association of Connecticut and the IMSI, and Ray Bonenberg, Past President of the Ontario Maple Syrup Producers Association, Director of IMSI, and retired from 36 years with the Ontario Ministry of Natural Resources.

# Environmental and Biological Controls on Sap Sugar Content and Yield from Maple Stems.

Timothy D. Perkins, Ph.D. – Research Professor & Director, University of VT Proctor Maple Research Center.

## How Will Climate Change Affect The Maple Industry?

Timothy D. Perkins, Ph.D. – Research Professor & Director, University of VT Proctor Maple Research Center.

#### A Maple Farmer's Journey Into Brooklyn's Farm Table Food Movement.

Mark Hastings, Windham County, VT sugarmaker and maple entrepreneur.

#### Rapid Cooling Maple Syrup When Making Maple Candy And Cream Using Vacuum.

Steve Childs, New York State Maple Specialist, Cornell University.

# The downward spiral of RO performance. Sizing RO's Correctly from the Start.

Clayton Christie, Engineer, Maple Expert Solutions Inc.

#### **Tours**

Five tour choices will be offered on Saturday, each one visiting a number of Vermont sugarhouses, dairy farms, and other points of interest. Details are at vermontmaple.org/2016/MapleTours.

#### Contests

The meetings will also be the site of the annual NAMSC maple syrup, candy, cream, and photo contests. Details and registration forms are available at vermontmaple.org/2016

## Investigating Decreasing Growth Rates of Sugar Maple in the Adirondacks

Daniel A. Bishop, Department of Forest and Natural Resources Management, College of Environmental Science and Forestry, Syracuse, NY, Harvard Forest, Harvard University, Petersham, MA

ecent research in the northeastern United States and eastern Canada suggests that sugar maple faces an uncertain future. Branch loss, discoloration in leaves, decreased nutrition, a reduction in sapling counts, and large die-off events in some regions have researchers concerned over the health and viability of maple populations.1-4 The term coined for this phenomenon is 'maple decline',5 and evidence of this decline has been observed across sugar maple's range. Researchers have been on alert to identify the causes of these decline episodes, proposing long-term effects from acid rain, insect outbreaks, disease, competition, and climate as possible inciting factors. 1,4,6 Up to this point, relatively little work had been conducted investigating trends and influences of the annual growth of sugar maple trees, utilizing the widths of tree rings to estimate growth rates for each year. Using this tree-ring approach, recent research suggests that growth rates have been decreasing in the Adirondack Mountains of New York State.

Growth rates are an important indicator of forest productivity, especially when observed over a large area. For foresters and ecologists, forest productivity is a strong proxy of the health, nutrition, and viability of a stand. When trees are not experiencing heavy stress – e.g. from climate-, nutrient-, or forest density-based sources – they should be growing at a steady rate over time. However, when essential nutrient

pools are depleted or an unusually dry summer suddenly reduces the available water supply in soils, the tree's growth rate will decrease. The severity and duration of these stressors can have varying effects on the annual growth rates of trees.

Two major mechanisms of stress over the last 50-60 years to sugar maple populations have come from acid rain and climate change. The first, acid rain, is a well-documented stressor in the northeastern United States, especially in the Adirondacks. Sugar maple is 'calciphillic', in that its productivity is very dependent on calcium availability in soils. In effect, the species is highly vulnerable to soil acidification from acid rain, which leads to depleted soil calcium availability and the mobilization of inorganic aluminum. The increased aluminum concentrations intensify the negative effects of acid rain on sugar maple productivity by blocking root uptake of calcium and other essential nutrients.7 Intuitively, a reduction in essential nutrient uptake can disrupt the production of different plant functions, such as reducing growth rates. Thankfully, since the federal Clean Air Act was enacted in 1963, large-scale reductions in acid deposition have been observed,8 indicating that sugar maple productivity should be improving. Whether it is an immediate or delayed response, enough time has passed to facilitate some recovery of the slowestgrowing trees.

The second major mechanism of stress, climate change, is also a welldocumented stressor for all tree species, both regionally and globally. Niche models - models that predict suitable habitats for different tree species under different climate change scenarios - predict that sugar maple will experience a large reduction in range and prominence in eastern North American forests by the turn of the century.9 However, very little work has been conducted to evaluate historical growth response of sugar maple to past climate conditions. A shift in the sensitivity of growth to climate or a strong correlation to seasonal or monthly temperature and precipitation would present a novel understanding of the susceptibility of the species under different climate change scenarios.

Given this prior knowledge of sugar

maple and its changing environment, we were compelled to ask two questions: (1) How have the growth rates of sugar maple changed over recent years; and (2) How has sugar maple productivity responded to recent changes in climate and acid deposition? To answer these questions, my co-authors, Colin Beier and John Stella of the SUNY College of Environmental Science and Forestry, Neil Pederson of Harvard Forest, Greg Lawrence of the US Geological Survey, and Tim Sullivan of E&S Environmental Chemistry, Inc., and I assessed the growth rates of range-centered sugar maple populations across 18 stands in the Adirondack Mountains and published our findings in the peerreviewed journal Ecosphere. Through sampling efforts conducted in 2009 and 2011, we collected and processed 450 increment cores from 242 trees over a

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wide gradient of soil chemistry composition. To calculate growth rates, we measured raw annual ring-widths for each increment core, and then scaled to basal area increment (BAI) to remove the effects of tree size on growth rates. Using BAI, we were able to evaluate long-term trends in annual growth rates for individual trees, identifying the total number of trees experiencing reductions in growth rates along with the timing (years) of these growth reductions. We then compared the average BAI during the periods of declining growth rates to site-level soil chemistry variables, with the expectation that growth rates would be lowest on acidimpaired sites (low calcium, high aluminum availability). We also took the ring-widths and removed long-term geometric trends and ecological disturbance using a statistical detrending technique to isolate interannual variability in growth. Finally, we compared these ring-width indices to climate variables to evaluate the climatic sensitivity of sugar maple growth, with the expectation that the growth sensitivity to climate would be weakest on the most acid-impaired sites.

We were surprised to find that the majority (57%) of sugar maple trees exhibited negative growth trends over recent years (Figure 1). Across the entire population, we observed declining growth rates in a large number of trees after 1970 with an intensification after 1990 (Figure 2). These decreasing growth rates were not anticipated by any of us at the onset of our study, as we sampled across a wide range of age classes in both healthy and unhealthy stands. In addition, recent warming10 and increases in summer precipitation totals and rainfall frequency10-12 in the region combined with reductions in acid deposition8 should have led to stabilized or increased growth rates.

Our results also yielded mixed results to the direct causes of this growth decline. We found weaker than anticipated growth sensitivity to climate. Specifically, sugar maple growth had positive correlations with summer precipitation and late winter precipitation,

Basel Area Incernent (mm/year)

1850 1940 1960 1960 2000
Year

Figure 1. Growth patterns of canopy-dominant sugar maple across a network of upland forests (n = 18) in the Adirondack Mountains, New York (USA). Basal area increments (BAI) are averaged by site (grey lines) and region (black line).

and negative correlawith tions summer minimum (overnight) temperatures. Growth sensitivity to climate did change over time, but we will need engage to further research to resolve the mechanisms

of these changes. As hypothesized, we found that growth was lower for trees growing in acid-impaired soils (low calcium, high aluminum), but the trends in growth rates and timing of the declines were not related to soil chemistry. This led us to conclude that growth rates were decreasing regardless of soil chemistry, in that both base-rich and acid-impaired soils both were supporting sugar maple trees with decreasing growth rates.

Changes in long-term growth rates are quite informative for forest management decision-making and act as a useful proxy for many different ecosystem services. For example, if these observed growth declines continue over a large area, we may experience reductions in carbon sequestration in these maple-dominated forests, as well as major disruptions in nutrient cycling

and reductions in habitats of other forest species. Under this scenario, foresters would need to consider adapting future management plans of mapledominated forests.

Of course, one of the major services of maple-dominated forests is sugar maple sap production. It certainly is too early to tell whether our findings will lead to reductions in sap yield. Our study did not directly test for changes in sugar content in sap or overall sap production in the region. Further, it is important to note that these trees were all sampled in state forests. These forests had experienced little management over recent years and sugar maple trees had not been tapped. However, a decline in growth rates could signal a reduction in energy and resources in an individual. Depending on a species' plasticity, resources can be allocated to

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varying degrees among many different functional and structural components of a plant, and a reduction in one function could signal a change in another function. Further research will be needed to evaluate whether these changes have greater implications for the maple syrup industry.

In conclusion, our study raises concern over the future of sugar maple in the Adirondack Mountains. We have discovered new evidence of decreasing growth and productivity in the region. Although decreased growth rates do not necessarily indicate that a tree's death is forthcoming or that recovery is unattainable, this observed trend over such a large area could indicate a significant problem for the species. Other studies have raised concerns that similar patterns may be observed across the northeastern United States and eastern Canada, warranting further study over a larger area. Despite our study's findings, there is no immediate need for panic among maple syrup producers; however we suggest scientists and stakeholders monitor productivity of this extremely important species over the coming years to establish whether growth declines are occurring more widely across sugar maple's range. If we do continue to observe these trends, the sustainability of this iconic and highly valued species will need to be addressed.

#### Notes

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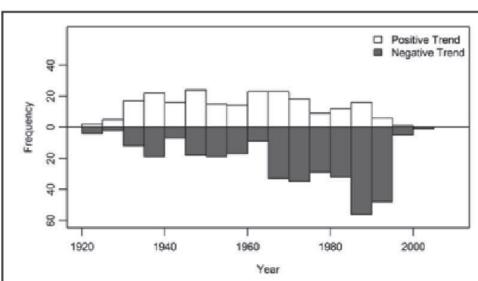


Figure 2. Frequency of individual tree growth trends through time (bin = 5 years). Positive trends in growth are shown in white and negative trends are in grey. Only significant trends are displayed (p < 0.05).

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<sup>7</sup>Lawrence, G.B., et al. "A new mechanism for calcium loss in forest-floor soils," *Nature*, 1995. 378: p. 162-164.

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<sup>11</sup>Pederson, N., et al. "Is an epic pluvial masking the water insecurity of the Greater New York City region?," *Journal of Climate*, 2013. 26(4): p. 1339-1354.

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## How Will Climate Change Affect Maple Syrup?

Joshua Rapp, University of Massachusetts Amherst and Harvard Forest, Harvard University

Temperatures are rising globally, with 2015 the warmest year on record. Climate models predict that temperatures will continue to rise, although the magnitude of increase depends on how the global community chooses to respond. How might climate change impact maple syrup production, which is so intimately tied to the daily weather? Headlines are dire. An internet search reveals news articles titled: "All tapped out"; "Climate change not so sweet for sugar maples"; "Peak maple: climate change wants to ruin your pancakes"; "Goodbye maple syrup: climate change pushing sugar maple out of the northeast U.S." Maple syrup even makes a list of "Eight foods you're about to lose due to climate change."

State, regional, and national climate change assessments come to a similar conclusion. In 2014, the Vermont Climate Assessment (Galford et al. 2014) stated that "...climate change threatens VT's maple sugar industry due to ... a decline in sugar maple health", while the U.S. National Climate Assessment (Melillo et al. 2014) stated, "...maple syrup producers...are...observing climate-related changes that are outside of recent experience." The New England Regional Assessment (New England Regional Assessment Group 2001) said, "...changes in climate could potentially extirpate the sugar maple within New England", while the Northeast Regional Assessment (Frumhoff et al. 2007) noted, "...warmer temperatures diminish the quantity and quality of sap flow and cause the tapping season to begin earlier and last less long."

The Acer Climate and Socio-Ecological Research Network (ACERnet) formed recently to study climate impacts on sugar maple and maple syrup production. With funding from the Department of Interior Northeast Climate Science Center, we are focusing our research on the relationship between sap quality and climate, and how producers can and are adapting to climate variability and change. With core sap collection sites from southern Virginia to northern Quebec, and Massachusetts to Indiana, we are collecting data on sap quality across a broad range of climate conditions. We are always interested in expanding our network of sap quality observations and data - from adding producer hosted sample collection sites to historical data, perhaps which is recorded on your sugar shack wall. We are also surveying maple syrup producers to understand how tapping seasons are changing and how producers respond to this change. What follows is the summary of a talk I gave during a workshop on "Sugar maple in a changing climate" held at the University of Massachusetts on December 7, 2015. To learn more about ACERnet and our project, and to get involved, please visit our website - blogs.umass.edu/acernet.

In this article I'll describe the main impacts of climate change on maple syrup production. These impacts can be put in to four categories: 1) availability of trees to tap; 2) tree health; 3) tapping season characteristics; and 4) sap quality and quantity.

#### Availability of trees to tap

Where a particular tree species grows is determined largely by environmental conditions. Soils, water availability and local topography all play a part, but climate is the ultimate filter. Paleoecologists who study the vegetation of the past by looking at pollen deposited in lakes, have seen that tree species ranges have changed as climate changed over thousands of years. At the end of the last ice age, for example, trees species moved north as the climate warmed. The current mix of tree species in a region reflects the climate of the past several centuries. Scientists have used this relationship between climate and tree species ranges to predict where tree species will live in the future. The USDA Forest Service maintains a "Climate Change Atlas" (http://www.fs.fed.us/nrs/atlas/)

shows how the habitat of 134 tree species in the eastern United States is predicted to change under various climate scenarios (Landscape Change Research Group 2014). The maps depict a reduction in sugar maple in most of its U.S. range by 2100. It is important to note here that these maps depict the suitability of habitat for sugar maple, and not the actual loss of trees. Trees can't pick up and move like animals, and individual trees can live a long time, up to 300-400 years for sugar maple. This means that many of the individual trees growing in the forest today will likely still be there in 2100, even if the habitat is less suitable for them.

In addition, for sugar maple to be pushed out of its current range, the trees will have to die and other species will move in. Seeds of these new spe-

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#### Climate: continued from page 17

cies will need to disperse from sites farther to the south, those seeds will need to germinate and the seedlings will need to establish and grow to the canopy to create the new forest. All of this takes time, and so far sugar maple seems to be holding its own. Mike Farrell has analyzed data from tree plots that are part of the U.S. Forest Service Forest Inventory and Analysis program (Farrell 2013). These data show that sugar maple of tappable size are increasing in the maple/beech/birch forest, while oaks and hickories, the predicted replacements of sugar maple, are actually decreasing. Another study found that sugar maple populations at the species' southern range limit have actually increased since 1990 (Hart et al. 2014). Both of these studies suggest that warming experienced so far has not affected the distribution of maple trees. From the available evidence, it looks like there will be sugar maples to tap for the next several decades at least. However, this should not be interpreted as evidence that sugar maple's range will be stable into the future. Data from the deeper past shows that eventually climate forces species to move.

#### Tree health

There may be trees to tap, but how healthy will those trees be? Maple producers and foresters have long been concerned with sugar maple tree health. In the 1980s, the North American Maple Project began monitoring sugar maple stands from Nova Scotia to Wisconsin (Allen et al. 1999). The overall project ran for 10 years, although monitoring was continued in some places like Vermont. The study revealed negative effects on sugar maple health from acid rain, insect pests, and other factors. Trees that are stressed by one factor

may be more susceptible to another stressor, like a less favorable climate. Two predicted effects of climate change that could affect sugar maple health are a reduced winter snow pack and more frequent spring frost if trees respond to warmer temperatures by breaking bud earlier. A study by Daniel Comerford and colleagues showed removing the snow pack caused root dieback and reduced shoot growth in sugar maples (Comerford et al. 2013). Koen Hufkens and colleagues studied a widespread frost event in the northeastern U.S. in 2010 (Hufkens et al. 2012). This frost came after warm spring temperatures induced budbreak 2-3 weeks earlier than normal. The frost caused leaf-dieback in sugar maples across a wide area. The trees eventually put out new leaves in June, effectively making for a shorter growing season. Climate change effects on tree health and performance may vary across the range of sugar maple. Recent studies have shown growth declines in mature trees that may be related to climate change in the Adirondacks in recent decades (Bishop et al. 2015) while sapling height growth was positively related to temperature in the Great Lakes region (Fisichelli et al. 2015). More research is needed to clarify how climate affects tree health across sugar maple's range.

#### Tapping season characteristics

Climate change impacts on the tapping season are probably the most immediate and best understood effects. Maple syrup producers are already reporting that the tapping season is getting earlier and becoming more variable (Mozumder et al. 2015). Studies that use climate models to forecast the future tapping season predict these trends will continue, with the tapping season beginning 15-30 days earlier by

the end of the century, and becoming shorter, at least in the U.S. (Skinner et al. 2010 and Houle et al. 2015). So far however, improved technology, especially vacuum tubing systems, have resulted in increased sap yield per tap in recent decades, hiding any deleterious effects of a shorter or more variable season.

#### Climate change effects on sap quality

Less clear is how climate change may affect sap quality. Sap quality is determined by its sugar content and the secondary chemicals that create the distinct taste of maple syrup, making it more than just sugar water. Both sugar content and secondary chemistry are likely to be affected by climate change, but how exactly is not well known. One study reported that sap sweetness at one sugar bush in New Hampshire decreased over four decades, possibly related to climate change (Carlson 2013). However, average sap sweetness can be influenced by a number of factors including tree size, forest stand density, species mix, and use of vacuum for collection, so it's not clear how much of this trend might be related to climate. Even less is known about climate effects on secondary chemistry, although these chemicals are often produced in response to stress. If climate conditions become stressful for trees, they may produce more secondary chemicals, leading to darker, stronger syrup. Depending on market preferences, this may be a good or a bad thing for producers.

#### Conclusion

Climate change is likely to affect maple syrup production by influencing tree health, the timing and duration of the tapping season, the quality of sap, and ultimately the availability of trees to tap. ACERnet is working to understand these effects, especially the relationship between climate and sap quality. Please visit our website to learn more: blogs.umass.edu/acernet.

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## Ask Proctor

'm considering switching from a flat pan to a larger pan with continuous flow, and keep hearing about the gradient. What is a gradient and why is it important?

Very simply, a gradient is a change in some characteristic from one position to another. For maple, the gradient in a maple evaporator refers to the change in sugar content (density) from the sap (or concentrate) inlet to the drawoff point.

Unlike a batch evaporator (a flat pan) where all the liquid in the pan is at or close to the same density, in a (semi-) continuous-flow evaporator (with channels and perhaps flues), the liquid in the area nearest the inlet has experienced less evaporation, and is also constantly being replenished by low density liquid. As the fluid moves through and is in the evaporator longer, more evaporation has occurred, and so the liquid is thicker. This evaporation and associated increase in density continues right to the drawoff point, where the liquid has been in the evaporator the longest, and thus has the highest sugar concentration (is most dense). The gradient develops naturally during the evaporation process, and is maintained by sap/concentrate additions at the inlet, and removal of syrup from the drawoff.

Dr. Tim



fter a warm spell that made the sap stop running, a hard freeze made it start again so I collected and boiled. The syrup had an off-flavor. Why?

Off-flavors are notoriously difficult to diagnose without tasting. In this case, there could be few different possibilities.

The most likely is that the sap fermented in the buckets, tubing, or tank, resulting in a "sour sap" off-flavor. This is often described as tasting "fruity," "tangy," or "fermented." It occurs because the sap that sat around in the tubing system, got warm and spoiled (lots of microbes like to grow in sap). Often it is good practice to dump sap that is excessively cloudy until it clears up again at the start of a new run, especially in the late season or after a hot, sunny period.

One thing to be careful of, especially during any warm spells, is that the sap doesn't go ropey or stringy. This is caused by a particular microorganism that exudes a lot of polysaccharide (slimy or gummy) material. Syrup made from this sap will be ropey or stringy (you'll know it when you see it). This syrup is largely unfilterable and unsalvageable. Your only real recourse is to dump everything, clean and the tanks and evaporator excessively and start over, or quit if the season is nearly over. The easiest way to avoid this is to clean all tanks and lines, drain float boxes and any other areas of the evaporator

Ask: continued on page 23



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#### Ask: continued from page 21

with low density sweet, and occasionally (daily during warm spells without sap) bring the evaporator to a boil for 5-10 minutes to kill any microbes that might start the spoilage process. Just be careful not to burn up your pans.

Another possibility is that the sap sat in an evaporator with heavy niter/sugar sand/scale, and may have picked up a bit of "niter off-flavor." This syrup typically has a little "bite" to it. Finally, it might be that you are near the season, and the trees may have started to produce buddy sap, resulting in "buddy off-flavor." Buddy syrup is often described as "chocolate", or "tootsie-roll", and is quite distinct and very objectionable to most people. If this is the cause, your season is over. Time to pull spouts.

Dr. Tim

Ask Proctor is a new feature in the Maple Syrup Digest, where researchers from the University of Vermont's Proctor Maple Research Center will answer questions about sugaring. If you have questions you'd like to submit for consideration for use in this column, please send them to editor@maplesyrupdigest.org.

#### Maple Tours and Events

The 2016 New York State Maple Tour will be held July 17-19. The tour will be based in Cortland, NY, and will include visits to 12 sugarhouses in five counties, as well as a banquet. Details and registration are at www.nysmaple. com/ny-maple-producers/2016-Maple-Tour/19.

The 2016 Cornell Maple Camp will be hosted by West Virginia Department of Agriculture in cooperation with the new West Virginia Maple Producers Association, July 20-23. The Camp will be centered in Morgantown, West Virginia and will feature two half days and two full days of training intended to introduce new or existing maple enterprises to commercial production. Details and registration at www.nysmaple.com/ny-maple-producers/2016-Maple-Camp/22.

The 2016 Pennsylvania State Maple Tour will be held September 16-17 in Tioga County. Hosted by the Potter-Tioga Maple Producers Association, the event will include a banquet, tours of sugarhouses, and other local attractions. Contact Miller's Purely Maple (570-724-7907) for more information.

The 5th Annual Lake Erie Maple Expo will be held November 11-12 in Albion, PA. The event features a trade show and more than 40 workshops. Details are at www.pamaple.org/LEME. html.

#### Research Grants Available from NAMSC

The North American Maple Syrup Council, Inc. Research Fund (NAMSC-RF) is pleased to announce its annual Request for Maple Research Proposals (RFP). For more information, see http://namsc.org/index.php/en/namscresearch-fund/proposal-submissionguidelines or contact NAMSC Research Committee Chair, Winton Pitcoff, at winton@massmaple.org.



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24 Maple Syrup Digest

## Thoughts on the Season: Bruce Bascom

ven before the NASS numbers were released in early June, Bruce Bascom, owner of Bascom Maple Farms in Alstead, New Hampshire knew that 2016's maple crop was the biggest in 100 years. He knew because he was running out of room in his warehouse, where he stores the drums of syrup he buys from producers throughout the maple region. Sugarmakers from just about every maple producing state were lined up in his parking lot with drums of bulk syrup to sell starting in March - small producers with one or two drums, and larger operations with trailerloads.

The season was particularly good for those in northern regions, like Maine, northern New York and Vermont, says Bruce, where the bulk of U.S. production comes from. Producers farther south had a mediocre season, but those regions make up a relatively small portion of overall production each year, so that didn't impact the totals very much.

Favorable weather was the main factor in the increased production, of course, but an increase in the number of taps also plays a role, says Bruce. He estimates, based on conversations with equipment manufacturers and dealers, that the U.S. added about a million taps in 2016. Many producers who brought syrup to Bruce reported that they had made ½ gallon of syrup per tap.

While the NASS numbers confirm that it was a great season, those numbers don't accurately depict the size of the crop, says Bruce. There have been years, for instance, when he has purchased more bulk syrup from New York producers than NASS said was produced. "We know that there's a big undercount in those numbers," he says,

"but we don't know by how much."

Quality followed quantity, too – there were far fewer drums of off flavored or commercial grade syrup than in recent years, he says, and even the Dark Robust syrup that he has purchased has had excellent taste.

With so much syrup on hand, the prices that bulk buyers are willing to pay are lower than they were a few years ago - \$2.20 a pound for top quality Golden syrup. The price most likely won't change much any time soon, predicts Bruce, thanks mostly to the quota system in Quebec, which he credits for stabilizing the market. "The price of syrup has more to do with the U.S./ Canada exchange rate and with the amount of syrup in Quebec's reserve than it does with production," he explains. Large buyers may slow down in their purchasing until supply levels off, he said.

The strong season is already prompting many producers to upgrade their equipment, Bruce says, after finding that their reverse osmosis machines and evaporators couldn't keep up with the sap this season. "Increasing operation size reduces the cost of production," he says, and he expects operations will keep getting bigger. There has been an increase in smaller producers as well, he added, based on an uptick in the number of hobby evaporators sold, and in the number of buckets sold.

Overall, Bruce says he is positive and optimistic about both production and demand, estimating that both could double in the U.S. in the next decade or so. "Some people think it's a bubble," he says, "but I think the market is still very strong."

#### Yvon Poitras

A nyone who has worked with Yvon Poitras soon recognizes his seasoned background in business and his ability to solve problems and get things done. Yvon received a degree in Arts from College St. Joseph and studied Business Administration at the University de Moncton. His studies were interrupted when his

father's illness meant that his assistance was required with the family business. This gave Yvon an early immersion into the business world. He was quick to combine application of his academic training with a natural aptitude for business.

Yvon's business experience includes the successful operation of two familyowned hardware stores, and the gener-

al management of three medium-sized companies involved in the production of forest products. He was involved in family, and subsequently self-owned, hardware store enterprises from 1967 to 1986. From 1988 to 2005, Yvon was employed by several prestigious Canadian Forestry companies in a wide variety of managerial roles, helping advance the forest sector in New Brunswick.

Yvon is not only an experienced and energetic business executive but has also been very active in community affairs over the years. He was a former Member of the Legislative Assembly and Cabinet Minister of the Government of New Brunswick. He was Minister of Municipal Affairs of New Brunswick for three years and Treasury Board Chairman for two during the period 1982 to 1987. He served on and directed several important committees, including Economic Development.

Yvon served as General Manager of

the New Brunswick Maple Syrup Producers' Association from 2008 to 2016 and for a few years as New Brunswick's Alternate Delegate to the North American Maple Syrup Coun-(NAMSC). served as a Director of the IMSI from 2008 to 2010 and as IMSI President and other IMSI Executive roles from 2010 to 2016. He has also represented New Brunswick maple producers on the

Canadian Maple Round Table. During his tenure with the IMSI, Yvon put his extensive political background to work in helping advance the maple industry and its potential, both in his home province of New Brunswick and at the federal level in Canada.

Yvon received numerous awards for outstanding performance and dedication to his work with the Knights of Columbus as well as others. His community service work was recognized by H.H. Pope Paul VI.

Yvon resides with his wife Laurette in Beaver Dam, New Brunswick.

## **Henry Marckres**

enry Marckres first became familiar with maple syrup when he was a young child, visiting sugar houses with his father, who was a part time syrup buyer for the Cary Maple Sugar Company of St. Johnsbury, Vermont (now Maple Grove Farms).

Henry graduated from Vermont

Technical College in 1974 with an Associate Degree in Agribusiness. He worked for the USDA Soil Conservation Service as a technician from 1976 to 1978. He then returned to the family farm where he, along with a friend, also produced maple syrup from 1,800 taps. Henry joined the Vermont Agency of Agriculture in 1984 as a retail product inspector and went on to become the state maple

specialist in 1989. He was appointed, in 1999, as the Chief of Consumer Protection, the position he currently holds.

Henry has been a huge asset to the maple community both in the state of Vermont and internationally. He has graciously been a guest speaker across the North American maple community and is considered by many to be the goto expert for maple syrup grading and quality assurance of maple products.

Outside of Vermont, Henry has played a very important role with the International Maple Syrup Institute (IMSI) and various international committees over the years. A great example of this is his involvement in the new international grading standards for maple syrup. He contributed to development of the standards as well as their establishment in the state of Vermont and with the USDA.

Henry has

received numerous awards over the vears for outstanding service to the maple industry, both in his home state of Vermont and across North America, including: Outstanding Sugar Maker of the Year - VMSMA (1999), Maple Person of the Year - VMIC (2002), Award of Exceptional Merit - Association of Natural Resource Extension Professionals (2007), Sumner H. Williams Memorial Award

(2011), Golden Maple Leaf Award - IMSI (2011), Award of Appreciation - Vermont Farm Show - for serving as assistant manager for 20 years (2013), and Lynn Reynolds International Memorial Leadership Award for Leadership - IMSI (2014).

Henry is well respected, and held in high regard by all who know him. He is a true leader in the North American maple community. It is fitting that he now enters into the Maple Hall of Fame as his crowning achievement.

Henry resides in Brookfield, Vermont with his wife, Debra.





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# Maple Labeling Requirements Required on label =

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Name	Net Welfsh	Contents by volume	Name and address of	Grade of Struc.	Ingeredient list	100% pure maple syno	Maple products & maple
~	v	v	~	v		v	
v		Or net weight.	v	Must be graded or labeled "not graded."			
v	v	v	v	v		~	Only in liquid products.
						V	
,	v	v	v		v	No adulterated or misbranded products allowed.	
~		v	v				
V	V		V		V		
v		~	v			~	All ingredients must be listed in equal size on label.
v		v	v	If graded, must meet USDA standards.			
~	~	~	~		~		
v	V	v	v	Must be in English and French.	Name is the ingredient list.	V	
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This chart reflects regulations as of June 2016.

"Maple Flavored Products"  Se listed on load or must	Maple Artificial Faus	Property of the product of the produ	Chulenbeling Comments.
		_	Spelling may be syrup or sirup. False information on label prohibited.
			prononed.
as the flavoring product.	"Artificial" must be conspicuous and clear on label.	"Maple syrup" and "maple sugar" are not allowed to describe artifical flavor.	Spelling may only be syrup. 100% pure maple sugar or cream made from sap.
V		V	100% pure maple sugar or cream made from sap.
	Flavors and % must be listed on label.	v	
			Maple syrup retail outlets and processing facilities operated by the producer are exempt from licensure, if gross sales are \$15,000 or less but labeling requirement should read, "Processed in a facility not inspected by the Michigan Department of Agriculture & Rural Development."
	~		Batch code.
Require 100% maple used as the flavoring product.		"Maple syrup" and "maple" not allowed on label if food product does not contain maple syrup.	
Must contain a minimum 20% real maple syrup maple.		Must use words other than maple on label.	Country of origin. Registration number. Blended products require place of origin.
Maple must be 15% of product and can not be called pure.		Imitation maple flavor must be listed as "artificial maple flavoring."	False information on label prohibited. Blended products require place of origin.
Advertising of a maple substitute must be different from publicity or advertising of a maple product.		Must use words other than maple on label.	Province of origin required on label. 100% pure maple sugar or cream made from sap.

Consult your state and provicial authorities for clairifications and updates.



### Maple Label Regulations: Is Maple Really Maple?

Kathy Hopkins, University of Maine Cooperative Extension

fter ten years of research and deliberation, the International Maple Syrup Institute developed uniform grade names that could universally be used to describe maple syrup. Most jurisdictions are now using the new grades. Once the international grades project was completed, the IMSI turned its attention to increasing maple's total share of the sweetener market from its current 1% to 2%.

Part of that effort has involved contacting food producers who are inappropriately using the word "maple" in the name of their food product without using any real maple in the product, and asking them to remove the word maple. This helps food companies understand that an international association will hold them accountable.

The chart on the preceding pages shows the range of labelling regulations used in different states and provinces. While some jurisidictions have minimal rules, others have very clear language about when the word "maple" can and cannot be used, helping to preserve the integrity of the pure products sugarmakers produce.

Adopting such regulations in your state or province might assist in weeding out the misuse of the word "maple" in your jurisdiction. Review the rules in other areas and consider if some of those might help protect your members' products in your state or province.

Keep in mind that regulations change often, and that not all regulatory language fits easily into a chart. See the websites below for complete language for each jurisdiction.

Maine: http://www.maine.gov/dacf/qar/laws\_and\_rules/food\_laws\_rules.shtml, http://legislature.maine.gov/statutes/7/title7ch101sec0.html

**Vermont:** http://agriculture.vermont.gov/food\_safety\_consumer\_protection/consumer\_protection/laws\_regulations

Michigan: www.michigan.gov/mdard/0,4610,7-125-50772\_45851-240577--,00.html Pennsylvania: http://law.justia.com/codes/pennsylvania/2010/title-3/chapter-61/6109

Minnesota: https://www.revisor.leg.state.mn.us/rules/?id=1550.0570

New York: http://www.agriculture.ny.gov/FS/industry/04circs/maplesyrupansugarCIR947.htm

Wisconsin: http://www.wismaple.org/state-fed-requirements/

New Hampshire: http://agriculture.nh.gov/laws-rules/index.htm#regulatoryservices Massachusetts: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXIX/Chapter128/Section36C

Ontario: http://www.ontario.ca/laws/regulation/110119#BK18

Canada: http://www.inspection.gc.ca/food/labelling/food-labelling-for-industry/maple-products/eng/1392414400422/1392414462687

Canada: http://www.inspection.gc.ca/food/labelling/food-labelling-for-consumers/eng/1400426541985/1400455563893

**Quebec:** http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/P\_29/P29R1\_A.HTM

US FDA: http://www.fda.gov/food/resourcesforyou/industry/ucm322302.htm#labeling US FDA: http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm2006828.htm

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Industry News: IMSI

## International Maple Syrup Institute News

Dave Chapeskie R.P.F. Executive Director, IMSI

The Board of Directors of the International Maple Syrup Institute (IMSI) met at the American Maple Museum in Croghan, New York on Friday, May 13. Discussions at the meeting were wide ranging, from sharing of information regarding the 2016 maple syrup crop, to quality assurance and marketing.

## 2016 Maple Crop: Supply, Demand and Pricing

Representatives from the states and provinces in attendance reported that

the 2016 maple syrup crop was very good or a bumper crop in many areas, including some of the larger producing regions of Quebec, Ontario, Vermont, and New York State. However, it was reported that the crops in Ohio and Pennsylvania were significantly down from what is considered

normal. Producers who tapped early fared better in the more southerly and warmer areas across the maple producing region since they were able to take advantage of the early sap runs. Central and northern areas enjoyed an extended sap run due to cool prevailing temperatures extending from mid-March to mid- or late April. Lighter color classes of syrup of good flavor were prevalent in many areas and there was minimal buddy or otherwise off-flavored maple syrup made.

It was reported that late in 2015 there was a reasonably good balance between supply and demand for maple syrup. In 2016, continued growth of markets

for both Grade A and Processing Grade maple syrup will help maintain balance despite production increases. Sales of maple syrup remain strong and are increasing by as much as 5-10% per year in some quarters. Meanwhile, the sale of high fructose corn syrup and cane sugar are on the decline based on Nielsen data. Sales of value added maple products are also up in some markets by as much as 15%. It was reported that mail order sales from western states remain strong. Continued growth in markets for maple syrup, other real maple prod-

ucts, and food ingredients will be important to absorb any year to year surpluses above the Quebec quota requirement. Prices for real maple products remain stable due, at least in part, to the Quebec quota system. The Strategic Reserve of maple syrup in Quebec is 58 million pounds as of May

2016.

The supply of certified organic syrup in Quebec has increased from about 22% of bulk syrup in 2015 to an estimated 25% in 2016. It is expected that more producers will become certified over the next several years due to the price premium for certified organic syrup and expanded market opportunities, especially in overseas markets.

## Marketing Strategy for Real Maple Products

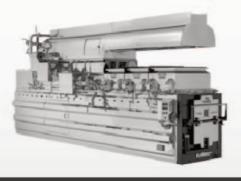
In 2015, both the Board of Directors of the IMSI and the North American Maple Syrup Council endorsed a mar-

IMSI: continued on page 37



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### IMSI: continued from page 35

keting strategy for maple syrup focused on North America. The IMSI has finalized work on the development of a generic marketing program based on a goal to double sales of maple syrup over the next seven years. The plan includes uniform messaging regarding the uniqueness of real maple, including the nutritional and green advantage over some other sweeteners. Representatives of maple producer associations, maple packer representatives, educators, marketing consultants and individual producers have assisted the IMSI in the development of this plan. A discussion paper outlining the goal and best-bets for generic marketing action led by the IMSI was approved by both the IMSI Marketing Study Group and the IMSI Board of Directors.

Two working groups with representatives from the U.S. and Canada have been established to focus initially on the development of uniform messaging regarding maple syrup and other real maple products and secondly to identify sustainable sources of financing for generic marketing of real maple products. You may contact the IMSI's Executive Director, Dave Chapeskie to obtain a copy of the discussion paper leading to implementation of a generic marketing for maple program. The IMSI continues to solicit input on program priorities.

### **OMNI-IMSI Partnership Project**

IMSI has entered a partnership arrangement with OMNI Hotels, a higher-end hotel chain with about 60 hotels located in Canada and the United States, to deliver a promotional effort for maple. Implementation of the partnership is expected to have the following benefits:

- It will be the first time all maple organizations have come together to promote maple uniformly.
- It provides an opportunity to execute a specific North American marketing strategy in a relatively low cost way and to understand consumer reactions to it.
- It is designed to reach the prime maple target audience, as contained in the IMSI's approved marketing strategy.
- It will serve as a valuable learning experience from which to build future maple promotions both at the state/ provincial and North American level.
- It will serve to extend the use of real maple products from weekend family breakfast occasions into the realm of more diverse uses.

A number of maple producer associations, maple packers and equipment vendors and maple syrup establishments from Canada and the United States have contributed to financing this project under the auspices of the IMSI. Additional contributions are encouraged. A four day immersion into maple was arranged for a team of OMNI Hotel staff in Vermont and in Montreal, Quebec in late March/early April. The immersion experience was designed to expose OMNI communications staff, chefs and others to maple syrup and maple products and the uses of maple in advance of implementation of the OMNI-IMSI Maple Promotion. The Promotion will last from May 30 through September 5. OMNI communications, which include a professional video, are posted at https://www.omnihotels.com/blog/the-magic-of-maple/

Further information on the Project can be obtained from IMSI.

### Required Reading for Sugarmakers and Your Customers

For Your Customers

A great way to teach your customers

about the versatility of maple syrup as a cooking and baking ingredient is to stock some cookbooks alongside the products for sale in your sugarhouse. A few have been released in the last year or so, each offering lots of ideas of how to use maple syrup as more than just a breakfast topping. Buying them in bulk directly from the publisher means you'll even be able

to make a few dollars from the sale, but more importantly you'll be educating people and making them want to buy more of the nutritious, healthy, all natural products you sell. Hang a sign telling people to buy two jugs – one for pancakes, and one for cooking!

The cookbook simply entitled Maple Syrup, by Casey Elsass, would be a great impulse purchase to stock in your sugarhouse alongside jugs of syrup. This small paperback volume contains 20 recipes featuring maple syrup, including breakfasts, meat & fish, veggies, desserts, and drinks. There are the standards - French toast, pancakes, vinaigrette – but also some more creative fare - maple-poached lob-

ster roll, maple-sage daiquiri, maplecardamom beef jerky. The author, a New Hampshire native, doesn't mince words, leading off the introduction with "Let's get this

out of the way right now: If you think maple syrup starts with "Log," Aunt," or "Mrs.," then put this book down and walk away." Each recipe is introduced with a short vignette extoling the virtues of maple.

Maple Syrup is published by Short Stack Editions, www.shortstackeditions.com.

To offer your customers even more ideas, Ken Haedrich's *Maple Syrup Cookbook* is now in its third edition, and it offers well over 100 recipes, as well as gorgeous photos, profiles of a number of sugarmakers from around the region, and a bit of history about sugaring. There's an explanation of maple grades, and a detailed description of the sugaring process.



Recipes include a good mix of both savory and sweet dishes, including hot chocolate sweetened with maple syrup, maple beef teriyaki, and maple glazed Brussels sprouts.

Maple Syrup Cookbook is published by Storey publishing, www.storey.com.

Maple: 100 Sweet and Savory Recipes Featuring Pure Maple Syrup, by Katie Webster, includes a large selection of gluten-free and vegan items, for customers with particular food preferences. It includes recipes for cocktails, soups, entrées, desserts, and other dishes, has some nice background information about the science

and practices of sugaring, and offers up some well-written explanations of why consumers should choose maple syrup as their sweetener of choice. It has lots of great photographs, as well.

Maple: 100 Sweet and Savory Recipes Featuring Pure Maple Syrup is published by Quirk, www. quirkbooks.com.

### For Sugarmakers

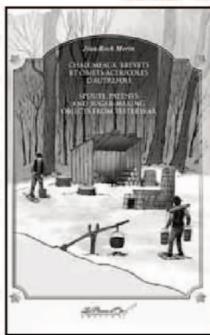
For the collector of maple sugaring antiques, Spouts, Patents and Sugarmaking Objects from Yesteryear is an invaluable guide. The bulk of the book is page after page of reproductions of patent sketches from the U.S. and Canada, mostly of spouts, but also of buckets, covers, and even evaporators. Some date back as far as the 1860s. and it's fascinating to see how many people tinkered with spout design over the years, each convinced that theirs would extract just a little more sap, or function a little

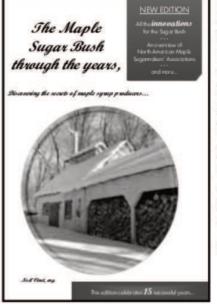
better. Interspersed with the patents are some photos and old advertisements for some of the tools, and the book concludes with a lovely story about a family sugaring operation in 1876. All of the text in the book is in both French and English.

It can be ordered directly from the author, Jean-Roch Morin, 12140, 1re Avenue, Saint-Georges, QC, G5Y 2E1, Canada. 418-228-9510. jeanrock\_mo-

rin@outlook.com

The Maple Sugar Bush Through the Years, a spiral-bound volume by Noel Vinet, offers a general history of sugaring, from Native American practices, through modtechnologies reverse osmosis. It includes explanations of every step of the sugaring process, from how sap flows, to how syrup is graded, packaged and sold. There's a chapter on "The virtues of maple syrup and maple products," one on innovations in maple sugaring technology, and some information on state and provincial associations. It's by no means a technical, how-to type of manual, but offers a very complete picture of the process and the industry. It can be ordered through the author's website, at www.horsepowerlogging.com.





### **Record Year for Production in Quebec**

Quebec's 2016 maple syrup production was an outstanding 148.2 million pounds, an unprecedented 23% jump from the previous record of 120 million pounds set in 2013. With 42.7 million taps in operation, the province's 7,300 maple syrup producers achieved a historic productivity level of 3.47 pounds per tap—a massive improvement over the previous best of 2.82 pounds per tap in 2013.

"We've never seen a harvest of this magnitude!" said Serge Beaulieu, president of the Federation of Quebec Maple Syrup Producers. "Our trees yielded huge amounts of maple water. At times the flow was so strong it was hard to keep up with the boiling. This year's harvest is a great windfall for our producers, to the tune of \$400 million. We have to keep in mind that in the maple

syrup industry our income is wholly dependent on harvest volumes. And it all plays out in just a few days of the year."

This year's spring weather was ideal for maple syrup production, with frequent periods of freezing and thaws. In more southern regions like the Montérégie, the first serious sap runs began in the third week of February. The last runs of the season came in early May in the Bas-Saint-Laurent and Gaspésie regions. This means the 2016 maple syrup season was eight weeks long. The combination of early warm weather and persistent cool periods is the main factor behind the phenomenal harvest. The highest yields of all were in the Centre-du-Québec region: 3.82 pounds per tap.



### **U.S. Crop Production Report**

Released June 12, 2016, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board, United States Department of Agriculture (USDA).

d		Number of taps	8		Yield per tap			Production	
Sidie	2014	2015	2016	2014	2015	2016	2014	2015	2016
	(1,000 taps)	(1,000 taps)	(1,000 taps)	(gallons)	(gallons)	(gallons)	(1,000 gallons)	(1,000 gallons)	(1,00)
Connecticut	83	85	86	0.193	0.224	0.221	16	19	5
Indiana	(NA)	(NA)	09	(NA)	(NA)	0.200	(NA)	(NA)	
Maine	1,850	1,850	1,860	0.295	0.299	0.363	545	553	
Massachusetts	290	310	315	0.210	0.242	0.244	19	75	
Michigan	430	470	400	0.244	0.270	0.225	105	127	
Minnesota	(NA)	(NA)	9/	(NA)	(NA)	0.184	(NA)	(NA)	
New Hampshire	490	260	545	0.229	0.275	0.310	112	154	
New York	2,200	2,310	2,515	0.248	0.260	0.281	546	601	
Ohio	450	440	370	0.289	0.261	0.189	130	115	
Pennsylvania	288	620	099	0.248	0.266	0.217	146	165	
Vermont	4,350	4,550	4,850	0.310	0.310	0.410	1,350	1,410	-
West Virginia	(NA)	(NA)	48	(NA)	(NA)	0.125	(NA)	(NA)	
Wisconsin	200	260	292	0.286	0.283	0.307	200	215	
United States	11,431	11,955	12,550	0.281	0.287	0.335	3,211	3,434	4

### **FOUNTAINS LAND**

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### 2016 Crop Reports from NAMSC Members

### Connecticut

The 2016 season in Connecticut was about average, not great, but not bad either. It started early, around the last of January, and was short, ending by mid-March. It was virtually the complete opposite of the last two years when it started late, around mid-March, was also short but yielded a very good syrup crop. This season was hampered by a mild winter and early spring warm up, which accelerated tree buds. As a consequence, those Connecticut sugar makers who have historically waited until early/mid-February to tap really had it tough. An additional factor was that a number of sugar makers reported very low sap sugar content. All in all, the crop was less than expected, but was acceptable to most.

Mark Harran

### Indiana

A small group of Hoosier producers were surveyed for this report. Sixty percent of them had a below average season, 30% stated that their season was average, and 10% reported an above average season as far as production is concerned. The earliest tapping date reported was January 23 and the latest of this group was February 23. Almost all reported being tapped by February 1. Several producers were finished boiling by the second week of March with a few still boiling during the third week of that month. Most sugar makers produced about equal amounts of medium and dark syrup with very little light syrup being made. Several producers reported that the sugar content of sap was a low as they have ever seen it.

Dave Hamilton

### Maine

Maine saw an early start to its sugaring season. Some producers in the southern part of the state made syrup as early as mid-January. By the middle of February most southern and central Maine producers were tapped and making syrup, soon followed by the northern producers starting to make syrup in the 2nd and 3rd week of March.

All producers experienced warmer than normal winter conditions, leaving many with quite a reach for tapping, but certainly a welcome relief from working on snowshoes all season.

By the end of the season southern and central Maine reported an average to better than average crop. Most northern producers reported having a very good season with pounds per tap going as high as 7lb in some areas. Overall, the entire state showed an excellent crop of syrup in all four table grades, all with excellent flavor, and with larger volumes in the lighter grades.

The producers hope that consumers enjoy Maine Maple, The Official Sweetener of Maine, with every meal.

Lyle Merrifield

### Massachusetts

After two consecutive seasons that started late, Massachusetts sugarmakers scrambled to get ready for what looked like an early start to the 2016 sap runs. Working in the woods was made easy by the lack of snow, a welcome break from the past few seasons that had required snowshoes and the occasional dogsled. Those who read the warm weather correctly and set

Crop Reports: continued on page 44

taps in February were not disappointed – many produced more than they ever had before, some making nearly a full crop by mid-March.

Though the season was early and bountiful, it was not consistent, with many deep freezes and warm spells halting the sap flow and giving producers a break from their work. Weather often hovered right around the freezing mark, meaning that even in our small state, sugarmakers at different elevations or even those in towns just a few miles north or south of each other had very different runs. Sugar content was moderate, and most sugarmakers reported making all Golden and Amber syrup. Even those who continued boiling into early April reported excellent flavor and color.

Our third annual maple weekend was a success, with repeat customers coming back to revisit their favorite spots, and new customers stopping by the more than 40 open sugarhouses to learn about sugaring. Several dozen restaurants around the state participated as well, featuring menu items from cocktails to desserts, all made with Massachusetts maple syrup.

Our annual kickoff event featured the State's commissioner of agriculture, John Lebeaux, tapping the ceremonial first tree of the season at Stonegate Farm in Conway. Our annual meeting and trade show in January was well-attended, and great workshops presented by Bruce Gillilan from Leader Evaporator offered sugarmakers lots of information on sugarhouse efficiency, as well as advice on maple marketing and sales.

Winton Pitcoff

### Michigan

Thumb Area: Production was poor this year at 1/2 to 2/3 of a good crop due to the mid-March warm up. We tapped in early March. We had the longest continuous night-and-day run we've ever had March 6-10, at the beginning of the warm spell. Sugar content was 2.2%, producing mostly medium amber. We had a good turnout for maple weekend. We also had a successful homeschool day and an FFA day for students.

Charlevoix area: The sugarbushes on vacuum that tapped February 15 with last boil April 16 got a full season. The sugarbushes that tapped in early March were at 75%. A long season with many all-night runs. Low sugar content after the first warm up of seven days with no freeze around March 1. Most sap was 1% in March and April.

Upper Peninsula: It was a long season. Started early and had hard quick runs. Sap never climbed over 1.7 but that is not that unusual for our area. Mostly in the 1.2 to 1.4 range. All in all a pretty good season.

Central Michigan Area: The syrup season in the central Michigan area started with tapping and collecting in mid-February. The consecutive warm nights of 40s and 50s during the 2nd week of March put an end to the season. There was probably about half a syrup crop this year compared to last year (but last year was tremendous). Syrup was medium amber and sap averaged about 2% sugar content.

Northeast Area: First sap collected on February 21, the second earliest one producer reported ever doing. Last boil was April 16. The flavor was very good, however no light syrup was made.

Debbi Thomas

### Minnesota

With a warmer than normal winter with little snow cover, most producers in Minnesota were predicting a repeat of the 2012 season which had record low production. It was certainly a confusing season to say the least.

At the annual MMSPA member meeting on May 21, many producers reported that they were collecting sap and cooking in mid-February – a record early start in this part of the maple-producing world. By early March the sap stopped suddenly due to a one-week warm spell and some producers who hadn't already set their taps chose not to continue because they felt they missed the early start. Others were pulling their taps because of the unseasonably high temperatures – they felt it was all over.

However, this is Minnesota after all, and by mid-March the weather patterns stabilized and temperatures returned to ideal ranges despite the lack of snow cover. Sap started flowing, and flowing, and flowing. The producers who stuck it out were wrapping up by the end of March and into the first week of April. Many producers reported that they were running out of fuel and had to dump their sap because they couldn't cook it all. Some of our producers in the far north reported finishing up into the second and third weeks of April, with many of them reporting higher than normal and even record level yields.

Overall, despite the weird weather, 2016 was a very nice season for most producers in Minnesota.

Chris Ransom

### New Brunswick

This year's maple syrup production was exceptional. Many would say they

had a bumper crop.

The southern region of the province saw very little snow cover, making this one of the easiest years in a long time to get into the woods. Maple syrup was produced in the south from about mid-February until about the third week of April. Many producers ran out of wood for their evaporators. The sap was not very sweet this year, but there was lots of it. Sugar content of the sap was around 1% to 2%; some producers saw sap as high as 2.5%. Most producers in the south saw a lot more of the Golden to Amber grades with varying amounts of Dark to Very Dark.

During the end of February and early March the south received a lot of rain, which caused the sap to flow. While the south received rain, the north was getting more snow delaying the season there by a few more weeks.

When the sap finally did start flowing in the north it was around mid March. Many producers in the north did very well, receiving close to average or above average production. I believe some producers received between four and five pounds per tap. Again, a lot made mostly the lighter grades as opposed to the darker ones.

All in all it was an excellent year for production in New Brunswick. Sales have been very good and maple expansion is always ongoing with a number of larger sugar bushes starting up or expanding. However there were a few exceptions, mainly in the south, as many old school producers waited too long to tap and missed some good runs in February.

David Briggs

Crop Reports: continued on page 47

June 2016

## A REVOLUTION IN THE SUGARING WORLD

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### Crop Reports: continued from page 45 New Hampshire

A survey of members of the New Hampshire Maple Producers Association indicated a near 100% crop produced for the 2016 season.

Unusually warm weather conditions meant that the prime sugaring time for New Hampshire for many sugarmakers was much earlier than in the recent past. First boiling dates, traditionally at the end of February for the southern half of the state, were instead reported to be the last few days of January and the beginning of February for many producers, with January 27 the earliest reported starting date. After a weeklong freeze, boiling started for most producers in the middle of February.

The northern half of the state began boiling in the beginning to middle of March, with the latest starting date reported being March 28. The season ended for most southern producers around March 31, with some sugarmakers experiencing their last boil as early as March 10, and others in the northern part of the state as late as April 18.

All grades of syrup were made this year, with Grade A Amber Rich Taste and Grade A Dark Robust Taste creating the vast majority of the crop at 45% and 44% respectively. Grade A Very Dark Strong Taste made up 13% of the total crop, and Grade A Golden Delicate Taste was at 6%.

Many sugarmakers had great results this season with record crop yields. High sugar content and an increased number of taps were reported. Many others reported a late start as well as erratic weather swings creating above average temperatures and freezing issues. Survey responses showed that 58% of

producers use vacuum systems and 68% use RO. This increased use of technology demonstrated its effectiveness for a successful season for the majority of sugarmakers in New Hampshire.

Robyn Pearl

### New York

It was an erratic season here in New York. We started especially early, and if you weren't tapped by January 23 you missed some good sap runs during the last week of that month. In spite of a lack of snow cover, when the sap ran we did get good production. The extreme warmup during the second week of March had everyone worried - it felt like a repeat of 2012 - and it did make production tail off in the warmest part of New York, the lower Hudson Valley. The rest of state, though, seemed to recover and continue production. Folks in Southern Central New York finished up next, at the end of March, but many folks in Western New York, the Catskills, and northern New York continued well into April. While you will find many producers in those warmer spots with 70% of their target production, in the rest of the state we had folks reporting 110% of last year.

It did seem as though sugar content was down on average – reports of 1.5% and 1.6% were common, with some saying they dipped to 1.2%.

In summary, it is hard to average the state and predict, but a wild guess is that we are equal to or a letter better than the crop of 2015.

Helen Thomas

### **Nova Scotia**

For most Nova Scotia producers 2016 was a great year, and will help with the

Crop Reports: continued on page 49

### North American Maple Syrup Council Research Fund

The NAMSC Research Fund funds research that supports and advances the maple industry. In recent years we have given tens of thousands of dollars to projects that have developed innovative practices and technologies, helped deepen our understanding of the science of sugarmaking, and promoted the products we all make.

### You can make a difference!

Concerned about the future of the Maple Industry? Make a contribution to support the maple research we fund. One easy way is to pledge to send \$.01 per container to the NAMSC Research Fund. Grant recipients are announced at NAMSC Convention each October.

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The NAMSC Research Fund is a non-profit, volunteer committee of the North American Maple Syrup Council, Inc.

continuing recovery from the disastrous winter and season of 2015. There are still some taps not repaired and the work will continue, with hopes of being back into full production in 2017.

For many producers it was actually the highest production per tap ever recorded in Nova Scotia. Those with high vacuum levels reported production of one liter or more per tap. For those who were able to get prepared and tapped for the mild weather in early February some very large sap flows were collected. For many it was the earliest production date ever. Sap flows were some of the biggest and fastest many producers have seen and those types of flows continued right to the end of the season.

There was a downside, though: sugar content was very low and many producers reported the lowest they have ever recorded. For many, an average of 1.5% seemed to be about the best it got, and toward the end some still collected and processed sap as low as 1%.

Sap flows were consistently very large through the season with sap flowing day and night with no frost. A very large part of the crop was much lighter than average with exceptional flavor.

Not all producers had a great crop, though, with some reports of 75%, but overall reports are well above average. It's possible the main difference among producers was the runs collected in February. They were very large runs and a lot syrup was made from them, so it was difficult for the later runs to make up for those early runs that were missed.

Kevin McCormick

### Ohio

For most Ohio maple syrup producers the season ended three weeks earlier than normal. Ohio Maple Producer's Association President Dan Brown summed up the 2016 season in one sentence: "Ohio did not have a short season, but it definitely had a very early season, that many producers almost missed." For Dan and others who started on the 20th of January, it was a sixweek season. For others who tapped at a more traditional time, it was a very short two week season with reduced production. The season ended during the first ten days of March.

Dan also made this comment: "vacuum tubing and taphole sanitation paid big dividends for many producers. For bucket producers, who lock their end of the season date in on the day they tap, it was a real gamble." Tap early and go out early or bet on a traditional tapping date and a normal season. For producers with vacuum tubing, in a world with climate change, the risks are still there but so are the potential rewards.

There were a couple of warnings that this season was going to come early. December 2015 was one of the warmest on record. Christmas day was 65 degrees and El Nino was in control. Many Ohio sugarmakers decided to tap early, taking advantage of the early onset of warm weather. The runs in the first couple of weeks of the season were outstanding. James Miller of Middlefield Township in Geauga County collected 14,000 gallons of sap from 3,200 taps in a 24-hour period during the first week of February. The same weekend Dan Brown collected 25,000 gallons of sap from his 6,000 tap operation in Knox County.

The one thing that producers had no control over was sugar content of the sap. Everywhere that I went, the story was pretty much the same: low sugar percentages were the norm. This is normal for early season sap but in 2016 the sugar content was low throughout the season. The dominant color grade across the state was Amber.

In District 1, Northwest Ohio, producers had a 75% to 100% crop despite the warm weather. Most tapped in the first two weeks of February and the season ended by the 10th of March. In District 2, SW Ohio, production was way below normal, with the season starting and ending in the month of February. District 3, Central Ohio, was the one area of the state where most producers had at least a 95% crop. They started in January and finished by the 10th of March, with a lot of good Amber syrup made. In District 4, SE Ohio, it was a mixed bag with some producers tapping in mid-January and getting a near average crop, and others having a very poor year. The season ended in District 4 in the first week of March. In NE Ohio, District 5, the season followed the same pattern, with the producers who tapped in January getting an average crop and those who tapped late getting a 50% crop. In the NE the season started the last week of January and ran through March 10. A few producers tried to make syrup after the 10th but the quality was poor and they pulled the plug. If you take a look at the season across the entire state, with the exception of those who tapped late in February and extreme SW Ohio, the state had a 75% of normal crop. I guess we will take it and hope for a better season in 2017.

Les Ober

### Pennsylvania

At the annual spring meeting I received the crop results from the five associations in Pennsylvania.

Northwest association reported low sugar content sap, and about a 60% crop.

Somerset Association reported a 40-60% crop. Those that tapped earlier did better. Syrup color was Amber Rich.

Northeast Association reported a 60-65% of crop Amber Rich and darker. It was an earlier season than normal.

Endless Mountains Association reported a 60% crop, Amber Rich and Dark. They had a much earlier season and it ended earlier. Sugar content was low.

Potter Tioga Association reported a 60-75% crop. Some Golden syrup was made early, but most of the crop was Amber Rich and Dark, with reports of low sugar content.

The season was one for the record books after such a variable winter. Things were looking good until March 1 when the two week warm front hit with temperatures into the 70s. The high temperatures pretty much finished the season. The March 1 tappers survived the warm spell, but still only made commercial grade syrup afterwards.

Larry Hamilton

### Quebec Maple Syrup Producers' Cooperative

It's my distinct pleasure to present the 2016 harvest report for Quebec's maple producers.

The years may go by but no two are alike, it seems. This year the trees

started producing sap at the end of February. 2016 can be characterized by a combination of high quality sap and exceptional spring temperatures.

In the vast majority of our maples, the sap flowed abundantly. In the northern and easternmost regions, production was decidedly lower than further west.

The 2016 harvest will go down in the books as having an average yield per tap of 3.47 pounds and excellent quality (both colour and flavour).

In conclusion, our cooperative association brings together 2,000 producers, ensuring an adequate supply for the transformation and marketing of high quality products in over 40 countries. The vision established by our founders and predecessors of delivering only the purest, highest quality products lives on. We still take this vision to heart today, to the benefit of consumers around the world. Since 1925, that's what has made our reputation and made us different. We are indeed "Producers of pure innovation."

Cécile B. Pichette, Michel Labbé

### Rhode Island

As a resident of Rhode Island, it was welcome news to have a warm winter after last year's extremely cold winter put a strain on people's heating budgets, but as sugarmakers, we approached this year's sugar season deeply concerned about its impact. If anyone purchased snow shoes after last year's extremely snowy and cold winter, they were of no use and collected dust this year, but that is typical of the unpredictability of the southern New England weather.

Members of the Rhode Island Maple Syrup Producers Association initially tapped our trees around January 24, compared to March 6 in 2015. Snow was not an impediment this year, and walking through the woods was much easier. We weren't worried about getting stuck in the snow – we were worried about ticks.

Last year was an exercise in patience and wonder. We wondered if there was even going to be a season. Would the winter come to a quick halt? But, the season came and we conquered. It lasted four weeks. This year, we were wondering the same thing. They were polar opposite years, with a dramatic difference in temperatures. Thankfully, this year lasted four weeks as well. Our average first boil was February 5, while our average last boil was March 10, compared to the first and second weeks in April of 2015.

Concern grew when those sugarmakers that tested the sugar content in the sap sometimes found it to be half what it was in 2015. We found that the sugar content in the sap was down dramatically to around 1.3% to 1.4%, while last year's was around 2%. Additionally, the trees seemed a little reluctant to give up the sap.

Our taps were down from 7,531 taps last year to 7,415 this year, yet still above our 2014 total of 7,100 taps. Additionally, syrup production was down from 1,134 gallons last year to 960 gallons this year with the syrup graded as mostly Dark Robust or Very Dark Strong Taste. Sadly, we had one member not tapping this year, one member not reporting and a former member not tapping due to a demanding career. However, a few of our members increased their taps.

The temperatures this year spent Crop Reports: continued on page 52

more days above freezing rather than that perfect temperature fluctuation of 40's during the day and 20's at night. Last year was by far an unusual year as the last snow pile melted around the 4th of July, whereas, this year the snow didn't stand a chance, and neither did those lonely, dusty snow shoes.

As they say, it could have been worse.

Thomas E. Buck

### Vermont

The 2016 season will almost certainly be a memorable one, from the

lack of any meaningful snow accumulation to several runs of sap that exceeded anything seen in recent history. Some operations report making 10-20% of their entire crop in 24 hours. All in all, it was an average to above-average year for most producers.

Early warm temperatures allowed producers to make syrup in late January/early February, and the season extended into mid-April for many. Despite the lack of a typical winter and some warm-

er than usual days in March, the night temperatures were cold enough in most locations to keep sugaring. A lack of many reports of widespread off flavor suggests that this year was good in terms of flavor. There have been many reports of below average sap sweetness, while other producers report average to above average sweetness this year. Some producers saw an uncanny amount of light syrup (Golden and Amber) while others report making very little light syrup and producing mostly the darker end of Amber, Dark, and Very Dark syrup.

Mark Isselhardt, Matt Gordon

### West Virginia

Most West Virginia Maple Syrup Producers Association members reported a quarter to two thirds of a crop. No one reported a full crop.

When producers chose to tap proved to be the major factor in their success. Most producers were fearful of tapping early, and so missed some early runs.

> The producers that did tap early experienced a normal length season. Those that waited for the normal tapping time had a short season.

> The season ended abruptly the first week of March. After March 7 we had a two week period of non-freezing nights and some day-time temperatures in the 70s.

There was some light syrup produced but most producers reported medium to dark.

The lone equipment dealer in the State (Brandon Daniels, CDL) reported that even though production was down, most producers have an optimistic view and are planning on expanding or improving their operations.

Several West Virginia Maple Syrup Producers Association members participated in the First Annual Maple



Mark Bowers and Amy Goodwin tapping tree at West Virginia's Maple Days event.

Day. March 19 was designated as Maple Day. The camps that were open for tours that day received a signed proclamation from the governor's office thanking them for their participation and promotion of the maple Industry. They also welcomed customers to their camps, along with visitors who were looking to educate themselves about the potential of being maple producers.

West Virginia Maple Syrup Producers Association is promoting two events this summer. Tom McCrumm was the headline speaker at a marketing workshop in early June. In July the Mid Atlantic Maple Camp will be held at WVU, with instructors Dr. Michael Farrell and Steve Childs. More info on both events can be found on WVMSPA Facebook page.

Tom Darnall, Mark Bowers

### Wisconsin

The 2016 Wisconsin maple syrup season for most producers started in late February. Snow cover this year in Wisconsin was at a minimum for a second year in a row. The entire state saw below average snowfall this winter but did not experience a lack of moisture, with steady rains until the end of December.

The southern half of the state had a slightly below average crop. Very warm weather conditions in late February and early March melted the limited amount of snow cover in this region. The very warm conditions also peaked daytime temperatures into the 60s, and the freezing temperatures were few and far between. Production in the southern half of the state started for most producers the third week of February. Syrup quality was excellent with most of the syrup being produced in the Golden category. Production in the southern half of the

state concluded for most producers the 3rd week of March, with the crop being about 85% of a normal year.

The northern half of the state had a slightly below average crop. The production season for most started the last week of February or the first week of March. The early weather conditions were not very favorable for sap flow, as warm temperatures with limited freezing started the season off very slow. The season eventually cooled off and producers saw some favorable runs of sap. The syrup quality was excellent with most of the syrup being produced in the Golden category. The production season concluded for most producers in the second week of April.

The overall production year in Wisconsin was slightly below average, with the majority of producers reporting between 85 to 95 percent of a crop. For the second year in a row the region experienced low sugar content for the majority of the sap that was collected.

The Wisconsin Maple Syrup Producers Association is pleased to announce the Wisconsin Maple Institute and Trade Show. This Event will be held January 13 and 14, 2017, at the Plaza Hotel and Suites in Wausau Wisconsin.

Jim Adamski



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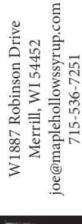


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