# Maple Syrup Digest

Vol. 58, No. 4

December 2019



Sanitation for 3/16" tubing Thomas Jefferson: An early fan of maple









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# MAPLE SYRUP DIGEST

Official publication of the North American Maple Syrup Council www.northamericanmaple.org www.maplesyrupdigest.org

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# Greetings from your President



appreciate the vote of confidence from the delegates in electing me as NAMSC President for the next two years. I'm confident with the help of the Executive Committee and the delegates we will continue to strengthen the North American Syrup Council. Any questions, concerns or suggestions are welcome – please contact myself, the Executive Committee or any of the delegates.

At the 60th annual meeting held in Duluth, Minnesota, we were able to see the results of our first two education grants given to State or Provincial Associations. Ontario applied for a grant to develop a presentation on "Judging Syrup - How to Make Better Syrup." Brian Bainborough shared the PowerPoint that was developed with us. There is still some audio work to be completed and then the PowerPoint will be available to all members of the NAMSC. I'm looking forward to being able to present this to Michigan syrup producers.

Minnesota applied for a grant to provide a "Cooking with Maple" demonstration, complete with recipes to take home. Chef John Plante prepared several dishes using maple – including pork, chicken, shrimp, salmon and salads. Although we did not get to sample the dishes, they all looked delicious and quite simple to prepare. Everyone took home the recipes and hopefully they will be used by all.

The education grants are available to all state and provincial associations to apply for. For more information on the NAMSC Education Grants, you can reference page 35 of the December 2018 Maple Digest. The Education Committee would welcome having several proposals to review.

The Minnesota Convention Planning Committee put together meetings and workshops which were packed full of information. They even arranged for Lake Superior to put on a show for us – crashing waves, cold, wind, rain and flooding was the order of the day on Monday. I would like to thank Stu Peterson and his team for their hard work that culminated in a great time in Duluth

Many of us are now busy getting ready for the 2020 sugaring season which will be upon us before long, and we can only hope Mother Nature is as generous to us as she was last year. But before we tap the trees, we will be gathering with friends and family for the upcoming festive season. As we prepare for those holidays, let's be ambassadors for our industry: sharing maple products and recipes that can make tables complete and honor the work we do. I wish you and your families a wonderful holiday season.

Debbi Thomas NAMSC President





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**Cover photo:** by Cynthia Cranston, Ashfield, MA.



# Sanitation, Clogging, or Both: A Comparison Study of 3/16" and 5/16" Maple Tubing

T.D. Perkins and A.K. van den Berg, Proctor Maple Research Center, University of Vermont, Underhill, VT

It is well recognized that microbial contamination of tubing systems can result in a substantial loss in sap yield if untreated. Over a decade of research and maple industry experience has produced a range of possible strategies to address sanitation-related issues in 5/16" tubing systems (Perkins et. al. 2019). Although rapidly adopted by many maple producers, due to the relatively short time period in which it has been in widespread use, there is far less understanding of sanitation in 3/16" tubing systems (Wilmot 2018).

To address this knowledge deficit, we conducted a multi-year study at the UVM Proctor Maple Research Center to examine sanitation-related losses in 3/16" tubing systems to determine which approach(es) might best mitigate sap losses due to sanitation.

### Methods

In 2015 we set up 12 plots in Underhill, Vermont: half of these had 3/16" tubing and half had 5/16" tubing (both lateral and droplines). Plots averaged 90.8 taps (range 71-112) and averaged three taps per lateral line. Lateral lines of each plot were connected to individual 3/4" mainlines leading to custom mini-releasers equipped with counters (Figure 1). Each time the releaser would dump sap, the counter was incremented. Releasers were calibrated for the amount of sap dumped each time, thus total sap quantity per tap in each plot could be calculated.

Releasers were connected to a Busch

pump operating at 25" Hg vacuum. Since the lateral lines were installed on slopes, the 3/16" lines should have theoretically added 2-3" Hg of natural vacuum to those lines, producing 10-15% more sap on average. During the sap flow seasons of 2015, 2016, and 2017, new spouts (S) were installed in all plots each year as controls, since this is the minimum sanitation treatment/ practice recommended. Spouts in all plots were 5/16" with a taphole depth of 2" each year. Spouts were pulled under vacuum at the end of each season (dry-cleaned) and plugged before other treatments were applied.

In 2018, two plots of each treatment line size (3/16" or 5/16") were equipped with either new standard spouts **(S)**, new Leader check-valve **(CV)** spouts **(C)**, or new drops (including tees) with CV spouts **(D)**.

In 2019, two of each line size had new spouts (**S**) installed, had new drops (including tees) with new standard spouts (**D**), or had lines cleaned with a bleach solution and new spouts installed (**B**).

Total sap yields per tap for each plot each year were used to calculate the average sap yield per tap for each sanitation and line size (3/16" and 5/16") treatment each year and expressed as a percentage of the 3/16" line treatment for that year. Therefore the 3/16" control treatment is 100% each year, and a corresponding value for other treatments that year above 100% indicates an improvement due to that treatment,

while a reduction from 100% indicates a loss in sap yield.

# Results

In 2015 (first season after installation), as expected due to the additional natural vacuum, 3/16" tubing out-performed 5/16" tubing by 12% (Figure 2). However, in 2016 3/16" systems produced only 3.8% more sap compared to the 5/16" systems, and by the 2017 season, 3/16" systems produced nearly 10% LESS sap than the 5/16" systems. This trend occurred despite the fact that new spouts (S) were being used in all the systems each season. This led us to speculate that the 3/16" tubing systems were more susceptible to sanitation-related issues than the 5/16" systems, or that there was something else going on that we did not understand.

In 2018, the 3/16" and 5/16" systems with only new spouts (S) performed roughly the same in terms of sap yield. Adding check valve spouts (C) performed as expected in the 5/16" tubing systems in that sap yield rebounded (10.4%). In the 3/16" systems however, the average yield from check-valve spout lines decreased by over 14%. Similarly, new drops with check valve spouts **(D)** were effective in the 5/16" systems (11.7%), and even more so in the 3/16" systems (17.2%). The difference in yield between new drops on 3/16" and 5/16" systems was not completely restored however, as the yield increase between the two tubing diameters, rather than being between 10-15% as predicted and observed in the first year of the study, was only 7%.

Tubing: continued on page 10



**Figure 1.** Two of the twelve mini-releasers used in this study. Each releaser was connected to 70-112 trees which made up a "treatment." Releasers were calibrated to a known volume of sap and are equipped with counters to allow calculation of the total amount of sap produced per tap each season for each treatment. Photo credit: Mark Isselhardt, UVM Extension Maple Program.

# Tubing: continued from page 9

Due to the lack of observed restoration of sap yield with check-valve spouts, and the incomplete restoration of sap yield with new drops, we concluded that 3/16" tubing systems were clearly being impacted by some factor other than the relatively straightforward sanitation issues we observe in 5/16" systems, and that the most likely explanation was plugging of fittings (tees and connectors) in 3/16" systems. We were unable to find clear widespread evidence of plugging however, despite considerable effort spent searching after the 2017 and 2018 seasons. If plugging was the explanation, they were difficult to observe visually after the season ended.

In 2019, 5/16" systems that received only new spouts **(S)** systems produced 10% more sap than 3/16" **(S)** systems. Systems that received new drops **(D)** produced 21% more sap on 5/16" sys-

tems, and 23% more in 3/16" systems. While this again represents an improvement for 3/16" systems, the gain is not as large as expected based upon the anticipated improvement due to natural vacuum. When sanitized with bleach however, 5/16" lines again showed a 21% improvement in sap yield, matching the increases observed (and expected) with drop replacement. In 3/16" systems, bleach sanitization increased sap yield by 53%, which slightly surpasses the predicted gain in sap yield. This result is a strong indication that plugging of fittings is indeed the primary factor impacting yields in 3/16" tubing systems as they age. It is likely that these plugs develop and grow, they greatly increase friction in the lines, and slow or stop the flow of sap, especially in the latter half of each sap flow season.

The fact that new spouts, check-valve spouts, and to some degree, new drops do not appear to result in the



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complete restoration of high sap yields in 3/16" tubing is a good indication that the typical recommendations for sanitation developed for 5/16" tubing systems are not entirely appropriate for 3/16" tubing systems. The approaches developed for 5/16" systems were not designed to prevent or ameliorate the plugging issues observed in 3/16" systems; new spout or new check-valve spout doesn't have any effect on a plug further downstream. Similarly, a new drop (including the tee) doesn't eliminate plugs in connectors/unions. Therefore, while these approaches will affect sanitation levels at the taphole, they cannot totally eliminate plugging.

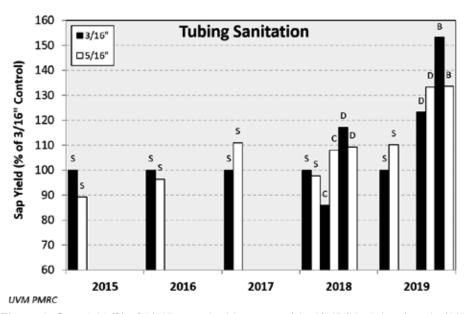
These results are consistent with those observed in experiments by Cornell researchers, who also reported success in 2019 trials with sanitation treatments in 3/16" systems in which tees were replaced. (Childs 2019).

Cleaning with bleach (in this instance a calcium-based hypochlorite solution) was used by a sugarmaker (Arthur Krueger) in southern Vermont, reportedly with excellent results as described in a Maple News article earlier this year (Krueger 2019).

# Summary

Sanitation is important in both 5/16" and 3/16" tubing systems, however these two systems have very large differences in how microbes affect sap yields over time, therefore the strategies to lessen this negative influence, and management to achieve adequate sanitation conditions are not the same. A great deal of research-based informa-

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**Figure 2.** Sap yield (% of 3/16" control tubing system) in 3/16" (black bars) and 5/16" (white bars) tubing systems from 2015 2019 at the UVM Proctor Maple Research Center in Underhill, Vermont. All lateral lines and drops were new in 2015. S = new spouts, C = check-valve spouts, D = new drops, B = bleach cleaned. For 2015-2017, N=6. For 2018-2019, N=2.

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# Tubing: continued from page 11

tion is available on sanitation of 5/16" systems – far less is known about sanitation of 3/16" systems. Based upon our results, it is recommended that maple producers using 3/16" tubing systems consider two possible options for sanitizing their maple tubing:

- Cleaning with a solution of calcium or sodium hypochlorite, preferably in the fall after the weather has gotten colder (to reduce recolonization and regrowth of microbes). It is important that an adequate amount of contact time is provided, 5-10 minutes or longer is preferred (this is typically not achieved when sucking in sanitizing solution under vacuum). Note that some new formulations of Clorox are not approved for certified organic maple operations. Also, to avoid a "salt" off-flavor, lines should be flushed with potable water after cleaning, or the first run of sap allowed to flow on the ground.
- Replace all 3/16" tees and 3/16" connectors at least every 2-3 years.

While there is some cost involved with either approach, it is anticipated that the gain in sap as a result of these activities will produce an adequate net profit to offset this. Unfortunately the use of chlorine solutions may lead to the problem of squirrels chewing on lines. More work on the economics of sanitation approaches for 3/16" tubing systems remains to be completed.

# **Acknowledgements**

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# Contribute to the Digest

We're always looking for news updates from provincial and state associations, producers, and businesses, as well as calendar items, photos, and ideas for articles. Send to editor@ maplesyrupdigest.org.

# Thomas Jefferson and the Development of the Maple Sugar Industry

Mary B. Donchez

To one can drive the highways and back roads of New England without being afforded numerous opportunities to purchase maple syrup and other maple products, but probably very few people think of Thomas Jefferson when they stop. The connection between a founding father from Virginia and this most New England of products is a little-known but fascinating byway in American history. Thomas Jefferson was an enthusiastic advocate for maple sugar, and there was even a brief "maple sugar bubble" when Jefferson's friend the physician and abolitionist Benjamin Rush and his Philadelphia Quaker associates - and even some foreign companies - bought maple forests, set up sugaring operations, and attempted to bring large amounts of maple sugar to urban markets in the 1790s. Some accounts in popular literature have labeled Jefferson the father of the American maple sugar industry<sup>1</sup> (see sidebar), but the reality is more complex. Fervent as his support was, it could not have overcome the logistical, technological, and climatological obstacles that turning Acer saccharum's sap into syrup and sugar presented. It is also difficult to draw a line from Jefferson to the steadily increasing amount of maple sugar and syrup produced because no production records were kept until 1840, when the US Census Bureau began to keep them. While Jefferson continued to advocate the use of maple sugar well past the turn of the eighteenth century, his influence was just one of many, and not a seminal one.

If we can discount Jefferson as a major factor in the development of the maple sugar industry, how did it evolve over the course of the nineteenth and twentieth centuries? Along with the collapse of the maple sugar bubble and the general difficulty of turning maple sap into sugar in the middle of the snowy woods, other forces kept maple sugaring from becoming a thriving commercial enterprise. Land had to be cleared for farming, and there were other ways to profit from the land besides sugaring. Maple timber could yield twenty to thirty times as much money as maple sugar, and potash - made from the potassium-rich ashes of the maple – was another source of revenue.

For more than a hundred years, the process of sugaring had remained virtually unchanged. The sap still poured into wooden buckets that were emptied into iron kettles over open fires. Starting in the 1830s, processes for refining sheet metal and the invention of the tin can led to advances in the manufacture and storage of maple products. Eli Mosher of Michigan patented the first metal sap spout in 1860.2 Metal sap pails and lids followed, and tin cans meant that maple syrup could be stored and sold without having to be turned into sugar. As the century wore on, production of sugar waned in relation to that of syrup, reflecting these improved storage methods. The most revolutionary change in the process of maple sugaring involved the substitution of evaporators for kettles. It is difficult to

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determine exactly when evaporators were first used, but between 1858 and 1863, D. M. Cook of Ohio patented four evaporating pans.<sup>3</sup> For the most part, after the 1870s, maple sugar-making technology remained static for another hundred years, when tubing systems came into widespread use. Nevertheless, maple sugar production increased steadily.

Anti-slavery sentiment provided a boost as the Civil War approached, and various almanacs urged readers to pay attention to sugaring: "Maple sugar will now call your attention. This is a more wholesome and pleasant sweetening, and every true American will prefer it to that which is seasoned with the

tears, sweat, and blood of the miserable slave."<sup>4</sup> These abolitionist sentiments, coupled with the burgeoning technical advances, pushed maple sugar production to its peak in 1860, and sometime between then and 1870, when the next agricultural census was taken, Vermont overtook New York as the nation's top maple sugar producer, a position it holds to this day.

There is no fixed date for the beginning of maple sugar-making as an industry.<sup>5</sup> The first annual Department of Agriculture report describes sugarmaking as still very much a family business but one that is coming to have a greater impact on the American agri-

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# **Thomas Jefferson: Early Maple Advocate**

Thomas Jefferson's advocacy of maple sugar began in the 1790s when he renewed his acquaintance with Benjamin Rush. He bought maple sugar for his use in Philadelphia, where he was serving as George Washington's Secretary of State, and for his estate at Monticello. He and James Madison took a trip north, through New York and into New England, in May and June 1791, and he gave a speech in Bennington, Vermont, touting the virtues of harvesting maple sap. On his way home he bought maple trees at a nursery on Long Island and tried for years to get them, and their successors, to grow at Monticello. He emphasized the benefits of maple sugar in numerous letters to friends over many years.

Jefferson's motivation was multifaceted. Harvesting maple sap on family farms fit with his ideal of a nation of small independent farmers. He also hoped to reduce the new nation's dependence on imports from Great Britain. Most importantly, he hoped to wean Americans off sugar produced by slaves in the British West Indies. Even though Jefferson was a lifelong slaveowner, he believed firmly that slavery must eventually end. Although he refused, to the end of his life, to advocate publicly for the abolition of slavery, he wrote that "time, which outlives all things, will outlive this evil also,"1 and it was in this hopeful but temporizing vein that he spent a lifetime advocating for maple sugar. As he wrote to a friend in 1809, "I propose to plant me a large orchard of Paccan and Roanake & Missouri scaly barks....To these I shall add the sugar maple tree if I can procure it. I do not see why we may not have our sugar orchards as well as our cyder orchards."

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<sup>&</sup>lt;sup>1</sup> Thomas Jefferson to James Heaton, 20 May 1826. Founders Online, National Archives <a href="http://founders.archives.gov/documents/">http://founders.archives.gov/documents/</a> Jefferson/98-01-02-6127.>



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cultural economy. The primary market for maple sugar and syrup was not the individual consumer but rather large processing plants that used them as flavoring, e.g., in tobacco products.6 Farmers sold their surplus to neighbors and friends or to the local general store at a low price or in exchange for cane sugar. The stores then resold it to mixers, who preferred a dark, inferior maple sugar because it would go farther in the mixture. By one estimate, seven-eighths of the product sold to consumers by the turn of the 20th century was suspect, being only partially maple sugar or even made entirely of other substances.7 In 1906, partly as a result of concern about the dilution of this iconic product of the American forests, Congress passed the Pure Food and Drug Act.8

The government attempted to help producers of domestic sugar, including maple, after it reduced customs duties on imported sugar in 1890. It agreed to pay a bounty of two cents a pound on sugar that tested ninety degrees or more by polariscope and one and threefourths cents for sugar that tested between eighty and ninety degrees (one degree was equivalent to one percent pure sugar).9 Despite government efforts to encourage sugar makers to take advantage of this largesse, the bounty wasn't popular. For one thing, it was provided only for sugar, with a minimum of 500 pounds, but the switch from sugar to syrup was already well underway. Also it involved bureaucratic paperwork and formalities for which farmers had little patience.

Meanwhile the price of cane sugar continued to drop. In 1818 maple sugar was half the price of cane but by 1885 cane was cheaper.<sup>10</sup> Maple sugaring

still made sense for farmers with woodland on their property and families to help them harvest the sap, but as the price of cane dropped, beet sugar became available, and America continued to urbanize, maple sugar lost its economic advantage. Still, the demand for maple sugar and syrup as luxuries and flavorings kept the industry alive.<sup>11</sup>

That supply continued to be furnished by small farmers and householders, not big businesses or cooperatives. When Helen and Scott Nearing wrote their overview of maple sugaring in this country in 1970, big business had managed to insert itself in any significant way only at the point of making and distributing maple sugar (as opposed to syrup) and manufacturing sugar-making tools.12 Maple sugaring never developed into a cooperative enterprise, with centralized evaporation, packaging, and marketing like creameries or cheese factories,13 spite higher profits for farmers for only about a month's work compared to, for example, dairy making. This may be because of the high weight and volume of sap that would need to be transported to a central evaporator, because the sap needs to be boiled very soon after tapping and cannot be easily stored, or because the evaporator facilities would be used for only a short time during the year.

Lack of intervention by big business did not mean lack of progress in maple-sugaring techniques. In 1916 W. C. Bower invented a metal sap-gathering tube which eventually proved impractical due to freezing and leakage. <sup>14</sup> Other tubing systems were tried in the first half of the twentieth century, including gutter spouting and iron water pipes. Various problems rendered these impractical, including breakage from

ice and falling limbs and damage from deer. Tin pipes heated up too much and caused the sap to ferment by the time it reached the sugarhouse. In 1959, Nelson Griggs of Vermont patented the first plastic sap-gathering pipeline system. Advances in the plastics industry starting in the late 1950s enabled the development of a collection system consisting of vinyl tubing connecting hundreds of trees, using gravity to drain the sap downhill to a centralized tank that fed directly to the sugarhouse.

Today, more than four million gallons of maple syrup are produced yearly in the US, along with a myriad of other maple-related products. Thus, more than 200 years after Jefferson tried to gain support for maple sugaring, maple products have established a niche as a luxury, home-grown, natural food item. Not exactly what he had in mind, perhaps, but a robust piece of the American economy nonetheless.

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This article was excerpted from "A Sweet Legacy? Thomas Jefferson and the Development of the Maple Sugar Industry in Vermont," a thesis for the Master's in Liberal Arts (ALM) degree at Harvard University in Extension, Cambridge, MA. For the full text, please see https://dash.harvard.edu/handle/1/37736749



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# Minutes of the 2019 NAMSC Annual Meeting

October 21-24, 2019, Duluth, Minnesota

The 60th annual meeting of the North American Maple Syrup Council (NAMSC) was hosted by Minnesota Maple Producers Association, Inc., Duluth, MN.

The conference was held in conjunction with the 45th annual meeting of the International Maple Syrup Institute (IMSI). Meetings began on Sunday October 20 with the NAMSC and IMSI Executive Committees discussing issues facing their respective organizations and industry as a whole. IMSI president Ray Bonenberg introduced new executive director Jean Lamontagne. Discussions centered around cooperation between the two international organizations.

October 21st consisted of NAMSC committee meetings: Finance, Executive, Education, Communications, Strategic Plan and Research Committees

There was a large equipment trade show. Technical sessions included: **An Effective Defoamer for Organic Maple** 

**Syrup Production** – Dr Abby van den Berg, University of Vermont Proctor Maple Research Center; Hydrometers - Are Yours Accurate? - Dr. Gary Graham, Ohio State University Extension; Keeping it Safe in the Sugarhouse: Tips for Accident Prevention and Emergency Preparedness – Jason Lilley, University of Maine Cooperative Extension; Opportunities for Maple Soda, Sports **Supplements and Fermented Products** - Aaron Wightman, Cornell Maple Program, Cornell University Department of Natural Resources; Flavor Grading - Brian Bainborough, Ontario Maple Syrup Producers Association; Chainsaw Maintenance, Cutting and Felling Techniques - Ben Carlson, MN Maple Producers & The nature Conservancy; Reduced Sap Yields from Tapping into Stained Wood - Mark Isselhardt, University of Vermont Extension, Proctor Research Center; Maple Business Trends - Mark Cannella, University of Vermont, Proctor Maple Research Center; Buddy Maple Syrup: Characteriza-

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tion, Origin and Remediation – Martin Pelletier, Centre Acer, St-Norbert d'Arthabaska; Proctor Center Update – Dr. Tim Perkins, University of Vermont, Proctor Research Center; Cornell Maple Program Update – Stephen Childs, NY State Maple Specialist, Cornell University; Guzzler Diaphragm Vacuum Pumps and Sapcheck – Douglas L Reilley, Bosworth Company; and Maple Syrup 101: Beginners Clinic, Jim Adamski, CDL Wisconsin.

David Briggs (NB), president of NAMSC opened and welcomed all to the 2019 Annual Meeting. Ray Bonenberg, (ON) president IMSI and Chris Ransom, president MN Maple Producers Association welcomed everyone to Minnesota.

The meeting began with a moment of silence for long time attendees that have passed in the last year including Roy Hutchinson and Bill Eva.

Secretary's Report: Joe Polak, secretary, read the roll call of states and provinces. The delegates introduced their respective alternates.

Delegates (D) and Alternates (A) included:

- Maple Syrup Producers Association of Connecticut: J. Mark Harran, (D); Bob Dubos (A)
- Indiana Maple Syrup Association: David Hamilton (D), Melvin Hawks (A)
- Maine Maple Producers Association: Lyle Merrifield (D), Kevin Brannon (A)

- Massachusetts Maple Producers Association, Inc.: Winton Pitcoff (D), Howard Boyden (A)
- Michigan Maple Syrup Association: Debbi Thomas (D), Larry Haigh (A)
- Minnesota Maple Producers Association, Inc.: Stu Peterson (D), Laurie Reddie (A)
- New Brunswick Maple Syrup Association, Inc.: David Briggs (D), George Roirdon (A)
- New Hampshire Maple Producers Association: David Kemp (D), Susan Folsom (A)
  - New York State Maple Producers Association: Dr. Eric Randall (D), Helen Thomas (A)
  - Maple Producers Association of Nova Scotia: Avard Bentley (D),
     Jean Bentley (A)
  - Ohio Maple Producers Association: Jen Freeman (D)
  - Ontario Maple Syrup Association: Brian Bainborough (D), Bob Grey (A)
- Pennsylvania Maple Syrup producers Council: Larry Hamilton (D), Matt Emerick (A)
- Maple Syrup Producers Cooperative of Quebec: (Cooperative de Producteurs de Sirop D'erable du Quebec) Cecile Brassard Pichette (D), Michel Labbé (A)
- Rhode Island Maple Syrup Producers Association: Thomas Buck (D), Lois Buck (A)
- West Virginia Maple Syrup Produc-NAMSC: continued on page 24

### NAMSC: continued from page 23

ers Association: Mike Rechlin (D) Jamie Schuler (A)

• Wisconsin Maple Syrup Producers Association, Inc.: James Adamski (D), Joe Polak (A)

Secretary J. Polak reported 17 member states and provinces were present and 0 absent.

The minutes of the 59th Annual Meeting held at Concord NH were presented as written by J. Polak. M/S D. Thomas/W. Pitcoff. Passed. The minutes of January 23, 2019 conference call were presented as written by J. Polak. M/S D. Hamilton/D. Kemp. Passed. Minutes of meeting Croghan, NY May 10, 2019 presented as written by J Polak. M/S B. Bainborough/A. Bentley. Passed. Minutes presented conference call September 4, 2018 presented as written by J. Polak. M/S D. Kemp/E. Randall. Passed

**Financial Report:** The report of the NAMSC General Fund FYE August 31, 2019 was presented by J. Polak, as follows:

- Funds in checking account \$32,704.62
- Cash receipts of \$86,724.75 including transfers from other accounts and disbursements of \$84,759.19, leaving a net gain of \$1,965.56.
- Income is based on dues from member states and provinces, and grant income through education projects conducted with UVM.
- Maple Syrup Digest receipts \$25,457.35 and disbursements of \$24,454.13 with a net gain of \$1,003.22.

- Balance of investment accounts (dedicated for special projects) \$85,629.63.
- NAMSC Research Fund balance in savings account: \$54,344.77. Receipts \$38,302.82 and disbursements were \$53,218.00

Motion made to accepted treasurer's report pending review of Audit Committee. M/S W. Pitcoff/D. Thomas. Passed

Research Committee Report: W. Pitcoff reported the money to fund research projects comes from voluntary contributions from individuals and businesses. The majority of the funding is received through the NAMSC Research Alliance Partner Program and the "penny per container" program.

The NAMSC Research Fund committee received one (1) proposal. One (1) proposal was chosen for funding totaling \$11,399.00 per year for 3 years: Long Term Impacts of Tapping and Sap Collection on Tree Growth and Health, Dr. Abby van den Berg, University of Vermont Proctor Maple Research Center. a reallocation on (1) proposal was approved for \$10,000.00 over 18 months: Development of Standards of Authenticity for Commercial Maple Water Products, Luc Lagace', Centre Acer. M/S L. Merrifield/J. Adamski

Research funding is made possible through voluntary contributions made to the penny per container program or flat fee. Contributions are made by individual producers, businesses, associations and Alliance Partners. Currently we have **16 Alliance Partners**: 2 Container Manufacturers (Sugarhill (MA), Inovaweld (QC)), 3 Dealers (Maple Hollow (WI), Haigh's (MI), Sugarbush Supplies (MI)), 4 Equipment Manufacturers (Lapierre (QC),CDL (QC),D&G

(QC) Sunrise Metals (IN)), 1 producer (Randall's Maple LLC (NY)), 6 Associations (Vermont Maple Sugar Makers Assoc., Massachusetts Maple Producers Assoc., New Hampshire Maple Producers Assoc., Indiana Maple Syrup Assoc., Wisconsin Maple Syrup Producers Assoc., and Maple Syrup Producers Assoc. of Connecticut).

W. Pitcoff reported maple associations or individuals can subscribe online to the *Maple Syrup Digest* at maplesyrupdigest.org. Editor is looking for photos, articles, advertising, classifieds and other printable information.

More color supplements are planned. Copies are available to member associations and are available for purchase. The Digest is posted on line online one year after date of publication. M/S B. Bainborough/E. Randall.

Education Committee report by Chair Missy Leab. Projects included the development of a training module for grading maple developed by B. Bainborough of Ontario Maple Producers Association, and Maple Cooking Demonstration on the last day of convention by Minnesota Maple Producers Association chaired by Stu Peterson. Mapleresearch.org is a website of curated maple industry research and practical skills resources. Use this site for accurate answers to maple related questions.

Karl Zander stated newly designed website **northamericanmaple.org**. More information about NAMSC will be posted to keep the site current.

**Convention Committee** chair J. Polak reported an outline is being developed with the help of previous hosts

NAMSC: continued on page 27



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# NAMSC: continued from page 25

to supplement materials available to future host organizations.

Dr. Timothy Perkins talked about the updated **NAMSC Maple Manual**. Chapters 5, 6, 7, 8, 9 and 11 are being updated. New chapters on Food Safety and history are being written. Publication is scheduled for Fall 2021.

Strategic Plan: M. Girard reported the Strategic Planning initiative began at the year 2000 Annual Meeting in VT with Luc Lussier (QC) chairing the first planning committee. There have been annual updates to the strategic plan over the past 19 years including a

change of meeting structure approved in 2019. Five meetings were held in 2018 including the annual meeting in October, delegate's conference call in January, a meeting at International Maple Museum Centre opening in May, a conference call meeting in September, and a formal board meeting the day before the annual meeting. We have

added a keynote speaker to the annual meeting agenda and workshops. M/S to accept Strategic Plan as presented D. Hamilton/C. Pichette. Passed.

Issues discussed included:

- Improving awareness of the work of NAMSC among members, through the Maple Digest, broader publicity of our events, and other means.
- Reducing confusion by combining invoices for NAMSC dues and Maple digest subscriptions.
- Encouraging future conference

hosts to allow for single day registrations to encourage local and younger sugarmakers to participate.

Steve Anderson, WI, reported inspection issues in Wisconsin includes a DNR permit to discharge waste water from the sugarhouse. WI Maple Producers Association is working with Maple Reverse Osmosis manufacturers to develop a Best Management Practices paper.

Joseph Orefice Ph.D., Director of Forest & Agriculture Operations, School of Forestry and Environmental Studies, Yale University presented the keynote lecture on Silviculture, and

Why it Belongs in a Sugarbush. Maple producers are on the front lines of climate change. It is not our place to argue the topic, but rather talk about how we must adapt to it. We can adapt by tapping early and using vacuum, among other practices. Challenges include the spread of invasive species, such as Japanese Barberry, Garlic Mustard, Bittersweet,

Multiflora Rose and Euonymus, as well as increased insect and pest pressure. Solutions include better forest management practices that give trees room to grow and species diversity, such as red maple, which often not attract pests that are attracted to sugar maple.

NASS Statistician, Dan Loftus reported value of 2018 crop in US \$142,000,000.00 with 13,400,000 taps. He went on to say there are 286 farms over 10,000 taps.

### D. Thomas of Financial Review

NAMSC: continued on page 29



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### NAMSC: continued from page 27

**Committee** reported books in order. M/S D. Hamilton/W. Pitcoff.

**Budget** was presented by J. Adamski. Only minor changes are recommended for next fiscal year. M/S J. Adamski/T. Buck.

Maple Specialists report: Mark Isselhardt noted 10 specialists met for several hours and discussed topics such as climate change, taphole sanitation, and business management. Ongoing research on tubing sanitation continues, as do several comprehensive maple production studies. Areas of concern where ongoing research is needed include invasive species, unpredictable weather, and forest management.

Nominations for President: Debbi Thomas (MI), Vice President: Howard Boyden(MA), Secretary/Treasurer: Joe Polak(WI) and Past President: David Briggs(NB). M/S W. Pitcoff/L. Merrifield, one abstention. Passed.

Associate members New: Adam Wild Director, Uihlein Sugar Maple Research, Cormell University, and Jean Lamontagne, Executive Director IMSI, Kyle Zardema, Forest Research Technician, Michigan State University and Keith Scheibel, director Midwinter Maple conference, NYSMA special Projects. Renew: Steve Childs, Dr. Gary Graham, Bradley Gillilan, Dr. Michael Farrell, Jean Marie Chabot, Bruce Bascom, Luc Lagace', Dr. Alfa Arzate, Mark Isselhardt, Dr. Tim Perkins, Dave Chapeskie, Bill Robinson, Keith Ruble, Tom Zaffis, Frank Vella, Yves Bois, and Lyle Merle. M/S D. Hamilton/L. Merrifield.

**Life members**: David Hamilton (IN), J. Mark Harran (CT). M/S L. Merrifield/D. Kemp. Passed

**Committees** appointed by President D. Thomas:

**Audit Committee**: Howard Boyden, chairman, Jim Adamski, Mike Rechlin, and Fred Hedmark.

Convention Planning Committee: Joe Polak, chairman, Ralph Fideldy, Michael Girard, and Michel Labbe.

Education Committee: Missy Leab, Chairman, Brian Bainborough, Winton Pitcoff, Steve Childs, Jesse Randall, Karl Zander, Dave Hamilton, and David Briggs.

**Finance Committee**: Jim Adamski, chairman, Tom Buck, Mike Girard, and Joe Polak.

Maple Hall of Fame Committee: Richard Norman, chairman, Gary Gaudette, Avard Bentley, Norman Anderson, Steve Selby, and Dave Chapeskie.

**Nominating Committee**: David Briggs, chairman, Stu Peterson, Cecile Brassard Pichette, and Tom Buck.

Research Committee: Winton Pitcoff, chairman, Eric Randall, Jacques Couture, Tom McCrumm, Henry Marckres, Joe Polak, Mike Girard, Ron Wenzel and Martin Plante

Strategic Planning/Policy Committee: Mike Girard, chairman, Winton Pitcoff, David Briggs, Jim Adamski, Lyle Merrifield, and Joe Polak.

**Executive Director**: Mike Girard.

Maple Digest Editor: Winton Pitcoff.

**Future Host States and Provinces**: 2020: Wisconsin, 2021: New York, 2022: Massachusetts, 2023: Maine, 2024: Michigan, 2025: Ontario.

NAMSC continued on page 30



NAMSC: continued from page 29

**2020 Wisconsin Mapling on the Mississippi**: Invitation was extended to attend the NAMSC/IMSI conference in LaCrosse, WI October 21, 2020.

**Members Forum**: Larry Haigh asked about status of Asian Long-horned Beetle. Response was given that two more trees were found in central Massachusetts and destroyed.

Motion made to **adjourn**. J. Adamski.

Annual Banquet was held and the NAMSC presented the NAMSC Special Recognition Award, presented to Avard and Jean Bentley, Westchester, Nova Scotia. Avard and Jean have attended most NAMCSC meetings for the last four decades. He was president of NAMSC 1998 and 1999, was inducted into the American Maple Hall of Fame in 2001 and made a Life member of the Council 2001. Jean has served as delegate and alternate many times.

Inductees into the **Maple Hall of Fame** for 2020 are Joe Polak (WI) and Ray Bonenberg (ON).

Submitted by, Joe Polak, Secretary/Treasurer NAMSC

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# Maple Specialists Meet in Duluth

Mark Isselhardt, UVM Extension

he annual meeting of maple research and extension specialists was held on October 22 as part of the NAMSC annual meeting in Duluth, Minnesota. There were 10 maple specialists in attendance from NY, VT, OH, ME, WV and QC. Each attendee contributed a brief update on the 2019 production season in their area, followed by a summary of recent work completed, ongoing and proposed. Several reported receiving significant grants from the USDA Acer Access program.

The crop reports indicated while the season was delayed by unseasonably cold weather, overall production was good with the exception of certain isolated areas having reduced yields.

Research and extension reports covered a wide range of topics from tree related issues to marketing and business profitability. There are multiple projects in the works in the US and Canada related to comprehensive research based publications on maple production in both print and video formats. It would appear that producers will have several titles related to the hows and whys of maple production in the coming years. There was discussion about the US-DA's decision to drop five states from the annual NASS maple crop survey. According to the NASS representative at the annual meeting, the decision won't be revisited until the next census of agriculture is complete (2024). One state (West Virginia) contracted with NASS to collect the data independently of the regular survey. Gary Graham of Ohio State Extension has developed an instructional guide for maple organizations to offer hydrometer testing to their members. A project from Centre

Acer is looking for samples of syrup from a wide geographic range to aid in the development of improved adulteration detection techniques.

A new maple facility on the Ohio State University's Mansfield Campus will have climate change as one of the primary focuses. Adaptation to the impacts of climate change will include red maple utilization and the increased use of technology.

Lastly, attendees were asked ahead of time to consider and then discuss the question: What are the greatest threats, opportunities and needs for research related to climate change in 2100? Many good items were put forward and while time did not allow for in depth synthesis a few common themes did emerge: The varied threats posed by invasive species (both plant and animal) was one such area of broad concern. A second significant area of concern were the threats posed by unpredictable weather, both within the production season as well as year round. One specialist said "it's not just getting warmer, it's getting weirder."

In terms of opportunities, maple was seen as relatively well-positioned due to sugaring's use of continuous forest cover and management that strives for the long term retention of healthy, large-crowned trees. The increased use of red maple was put forth as another opportunity for the maple industry to adapt. Specific needs identified by the group included improved forest management recommendations and strategies for managing for unpredictable weather events.

# 2019 NAMSC Maple & Photo Contest Winners

# **Golden Delicate Syrup**

- 1. Girard's Sugarhouse, Michael Girard, CT
- 2. Greens' Sugarhouse, Pamela and Richard Green, VT
- 3. Boyden Brother's Maple, Howard and Jeanne Boyden, MA

# **Amber Rich Syrup**

- 1. Jack & Jill's Maple Hill Farm, Jack Brown, MI
- 2. Moram Maple, Patricia Hyde, MI
- 3. Timber Sweet Maple Syrup, Amy & Ralph Fideldy, MN

# **Dark Robust Syrup**

- 1. Jake's Syrups, Jerry Jacobson, MN
- 2. Proctor Maple Research, Abby Van den Berg, VT
- 3. Misty Maples Sugarhouse, Dave & Nancy Hively, OH

# Very Dark Strong Syrup

- Hedmark's Maple Ridge, Fred Hedmark, WI
- 2. Never Summer Sugarbush, Jason & Gree Bradley, MN
- 3. Timber Ridge Farm, Tony & Deb Zenner, IA

# Maple Sugar

- Richards Maple Products, Jen Freeman, OH
- Boyden Brother's Maple, Howard & Jeanne Boyden, MA

# Maple Candy

- 1. Boyden Brother's Maple, Howard & Jeanne Boyden, MA
- 2. Green's Sugarhouse, Pamela & Richard Green, VT

# **Maple Cream**

- 1. Boyden Brother's Maple, Howard & Jeanne Boyden, MA
- 2. Maple Sweet Dairy, John Baroun, WI

# **Best of Show**

Jack & Jill's Maple Hill Farm, Jack Brown, MI

### **Photos**

People on the Job, JoAnn Merrifield, ME

Sugar House, JoAnn Merrifield, ME

Sugar Bush, Green's Sugarbush, Pamela & Richard Green, VT

Product for Market, Green's Sugarbush, Pamela & Richard Green VT



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Industry News: IMSI

# International Maple Syrup Institute News

**¬**he International Maple Syrup Institute Update. The maple industry met in Duluth in October, where the Minnesota Maple Syrup Producers' Association hosted Superior

Sweetness, the annual general meetings and conference. The IMSI is thankful for the opportunity to participate and to hold our AGM and 4th board meeting of the year at the conference. We are very grateful to the volunteers, planning committee members and to co-chairs Shelly Carlson and Stu Peterson, who gracefully hosted the event. Thank you all!

IMSI President Ray Bonenberg will be inducted into the Maple Hall um Center in May 2020. Ray is a highly principled and talented leader who works tirelessly to advance the interests of the industry. He was instrumental in the successful resolution of the 'added

sugar' and California Proposition 65 issues. Ray also recognized that the issues and challenges facing the maple industry are becoming more frequent and more complex. Thus, he initiated the IMSI's Commission Report; a study to ensure that the IMSI remains fully relevant and

highly effective in serving the needs of the North American maple industry. This resulted in adding more resources and critical strategic functions to IMSI

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# IMSI: continued from page 33

so the maple industry is able to respond to the fast-changing social, trade, environmental and regulatory environment.

# IMSI Awards presented in Duluth

The IMSI's Golden Maple Leaf Award was presented to Julie Barbeau of the Quebec Maple Producers (PPAQ).

The IMSI's Lynn Reynolds Memorial Leadership Award was presented to George Cook of the University of Vermont Extension.

IMSI President's awards were presented to Dr. Abby van den Berg, research assistant professor at the University of Vermont's College of Agriculture

and Life Sciences; Kathryn Hopkins, extension educator at the University of Maine Cooperative; and Dr. Luc Lagacé, a researcher and R&D team leader at Centre Acer.

The IMSI elected new members to build a strong executive team with diverse expertise and skill sets. Pam Green of Vermont was appointed President of the IMSI. Pam is a successful Vermont maple producer and past president of the Vermont Maple Producers Association. Tom Zaffis of Turkey Hill Sugarbush was appointed 1st Vice-President. Additionally, Mike Farrell of New Leaf Tree Syrups joined the IMSI executive. Ray Bonenberg will continue to serve on the executive team in the capacity of past President.

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Update and next steps on 'added sugar' issue. The IMSI is grateful that the FDA has published non-binding guidance that the phrase "added sugar" would not be required in the regulated portion of the nutrition facts label. However the FDA's guidance instructed that an otherwise unidentified percent daily value would be required to appear on a blank line below the amount of total sugar on the nutrition facts panel for maple syrup. This orphaned floating daily value percentage would have no required explanation. The IMSI remains concerned that the orphaned, floating percent daily value would suggest to consumers that pure maple syrup producers included a typographical error on their labels, thus exposing producers to consumer complaints. The FDA offered in guidance that producers could voluntarily use an obelisk (†) by the orphan percent daily value and include an explanatory footnote explaining that this refers to a percent daily value of "added sugar." We remain concerned that consumers reading this phrase would assume sugar is added to pure maple syrup.

The IMSI is still hopeful that an accommodation can be reached allowing for an explanatory statement that avoids use of the phrase "added sugar." In that the FDA has described added sugars as the amount of sugar contributed to one's diet, we are requesting that the agency provide confirmation

IMSI continued on page 37



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# **WV Offers Maple Courses**

Karen Milnes

espite an ominous outlook at the beginning of the week, the Pendleton County weather couldn't have been better for the third residential weekend of Future Generations University's Maple Syruping Certificate Course, Held November 1-3, 2019. The maples displayed their full Fall glory against clear blue November skies, and each morning presented itself with a twinkling of frost on the ground.

Starting in 2017, with support from the One Foundation and in partnership with the West Virginia Department of Veterans Assistance and the West Virginia Department of Agriculture, the course has recruited students interested in tapping into one of the region's most abundant resources. Maple syruping is a cultural tradition in the Central Appalachians that had more or less fallen out of favor as the food system was industrialized, and the availability of inexpensive sweeteners like corn syrup and white refined sugar increased. Some remember, and some are surprised to find out that maple syrup can, in fact, be made this far South; but a new wave of innovative technologies and a resurgence of interest in the health benefits and self-sufficient mentality have contributed to a growing interest in the industry.

Aimed at preparing Appalachian residents to start their own sugaring operations, the Maple Sap Collection & Syrup Processing course covered the spectrum from backyard collecting and boiling to large-scale 5,000 taps operations. Students traveled from as far away as North Carolina to take part in the three-day intensive residential,

and plan to spread their knowledge beyond the reaches of Appalachia. Kristin Swoszowski-Tran, who made her way down from Pennsylvania said, "I'm looking forward to taking what I've learned with me as I start my fledgling operation in the mountains of northern New Mexico."

Each morning began with classroom time, covering topics as wide-ranging as woodlot assessment for maple syrup potential, to sugar structure and concentration of sap versus syrup. The afternoons were filled with hands-on tutorials at various local farms and sugar shacks of West Virginia Maple Syrup Producers Association (WVMSPA) members.

Friday afternoon, participants put in sample plots and assessed the woods at Sweetwater Farm in Sugar Grove, WV for maple syruping potential, learning to calculate estimates of tubing and equipment needs and what to expect during the season.

Students ran lateral lines that operate on natural vacuum and attached drops at M&S Maple Farm on Saturday in Upper Tract, WV. A tour of the sugar shack and evaporating process, led by owner/operators Mark and Sarah Kimble, culminated in candy and bourbon and rye barrel-aged syrup tasting.

And Sunday, after a morning of grading and identifying off-flavors in maple syrup, the group made the trek to Cool Hollow Maple Farm in Sugar Grove, where owner/operator Ricky Harper demonstrated what a larger-scale operation that uses artificial vacuum can look like.

Overall, the mood was jovial and participants were pleased with the course and eager to go home and apply what they had learned, "I really enjoyed the class!" Kristin commented, "Not only was the course well-designed in terms of orchestrating on-site visits with maple producers, but the relevant text dovetailed with the field experiences in a way that reinforced my learning by actually doing. The handson component really stood out for me when I was making choices about how and where to learn about maple sap and syrup production."

But it's not over: later in November, the online sessions of the course will commence and students will gain membership into the WVMSPA. These will cover more tree science, the regulatory environment, and planning a maple business with guest teachers Cindy Martel from the West Virginia Department of Ag and Tom Hammett from Virginia Tech's Center for Forest

Products Marketing and Management staff. All in all, the course ran smoothly, the weather was perfect, and students left with a better understanding of the hard work and sweet rewards of running a maple syrup business.

# IMSI: continued from page 35

allowing the use of an explanatory footnote referring to sugar added to one's diet, thus reducing consumer confusion related to the phrase "added sugar."

IMSI drafted and sent a letter to the FDA specifically requesting confirmation that an explanatory footnote such as the one below will be recognized by the FDA as truthful and not misleading:

t One serving adds 24g of sugar to your diet and represents 48% of the Daily Value for sugars added to your diet.

We are awaiting a response and will inform our members of the outcome and recommended next steps as soon as possible.

# MAPLE RESEARCH.ORG

# NORTH AMERICAN MAPLE SYRUP COUNCIL

AMSC has launched mapleresearch.org, a new online resource for the maple industry. The site is a curated collection of research papers, articles, videos, and tools, representing the most current and scientifically accurate information for maple production, to help all producers make the best products possible using the most current and most sustainable practices.

From Maple Syrup Digest articles, to producers' manuals, to

how-to videos, the site includes a collection of the best resources available online about all aspects of maple syrup production, at no cost. The site is searchable, and resources can be downloaded and printed.

The site was built in collaboration with the University of Vermont's Proctor Maple Research Center, and funding was provided by the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service.

# NY Upcoming Schools and Workshops

**January 3-4** New York State Maple Conference, NYS Fair Grounds, Syracuse NY. Contact: cornellmaple.com

January 11 Maple Expo- St. Lawrence County, Contact: Cornell Cooperative Extension, 1894 State Highway 68, Canton, NY 13617-1477; 315-379-9192

January 17 Lewis County Maple Production for the Beginner, Contact: Michele Ledoux, Cornell Cooperative Extension Lewis County, 5274 Outer Stowe Street, P.O. Box 72, Lowville, New York 13367; 315-376-5270; mel14@ cornell.edu

January 18 Lewis County Maple School, Contact: Michele Ledoux, Cornell Cooperative Extension Lewis County, 5274 Outer Stowe Street, P.O. Box 72, Lowville, New York 13367; 315-376-5270; mel14@cornell.edu

# 25th Annual NY Maple Conference

The NY Maple Conference will take place January 3-4 at the NY State Fairgrounds in Syracuse.

Friday's general admission registration and trade show opens at 4:00 PM with workshops beginning at 5:00 PM. Friday night's program will also include a used maple equipment and supplies auction at 6:00 PM.

Join us Friday night from 8:00 PM until 9:30 PM for a special Maple Wine, Beer, and Spirits Seminar and Social.

Saturday's general admission registration opens at 7:30 AM and ends at 4:00 PM. Workshops begin at 9:00 AM. There will be over 40 sessions on all aspects of maple production.

For registration information, go to www.cornellmaple.com

# Thank you to our Research Alliance Partners

The research published in the *Maple Syrup Digest* is funded in part by the North American Maple Syrup Council Research Fund. The Fund is supported by Alliance Partners and other contributors who make generours donations each year. Please support these businesses and organizations.

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We're always looking for news updates from provincial and state associations, producers, and businesses, as well as calendar items, photos, and ideas for articles. Send to editor@maplesyrupdigest.org.

# Please Consider Including NAMSC in Your Estate Plan

The North American Maple Syrup Council has received a number of generous bequests from sugarmakers who wanted to ensure that the important work of our organization can carry on. Those funds helps us promote the maple industry and support our members. Planned giving like this is a way for you to show your support for the maple syrup industry for many years to come. It's a simple process.

Contact your attorney for information on how to revise your will, or your financial institution, plan administrator, or life insurance agent for the procedures required to revise your beneficiary designations.

The information needed for your legal documents is: North American Maple Syrup Council, PO Box 581, Simsbury, CT 06070.

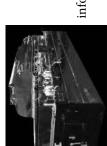


# WHEN PLANNING A GREAT MAPLE SEASON, START AT MAPLE HOLLOW









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