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Tapping Below the Lateral Line
Maple's Changing Story
2016 Conference Reports

The Newsletter of the North American Maple Syrup Council

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Greetings from your President

Following the tradition of 57 years, maple syrup producers, researchers, equipment manufacturers, statisticians, market specialists and government representatives met in October to conduct the business of the North American Maple Syrup Council. An amazing amount of work came before the Council and its committees and four days later, budgets had been proposed and passed, research proposals were reviewed, argued and awarded, and reports were delivered by an impressive cadre of specialists. From my perspective, clearly the most important outcome of these meetings is the information/knowledge transfer accomplished via the technical sessions, the one-on-one with manufacturers' representatives at the trade show, and the dialogue between participants in the hallways, over meals, and during the tours.

During the next year the Council will support several educational projects. I am pleased that the Council was able to address a funding request from the American Maple Museum located in Croghan, NY. The endowment funds held by the Council will allow the Museum to renovate part of their facility for display and education relating to the history of the North American maple industry, and the NAMSC Maple Hall of Fame. Funds from the Haas, Kress and Willits endowments will help to support and display this assemblage of North American maple pioneers. We look forward to holding our first mid-year Council Delegates' meeting in the newly branded NAMSC Maple Hall of Fame room in May 2017.

As always, the Council endeavors to provide a collective and collaborative voice for its wide geographic range of member producers. It is important that each provincial and state Delegate report back to their associations and colleagues the news, research findings and happenings of these Council meetings. If yours has not or if you have suggestions for change or consideration, please do not hesitate in contacting any of the Delegates listed on the first page of this publication. Your voice, collaboration, and input is critical for the Council to do its work. Much is at stake. The future of maple syrup as an internationally recognized commodity is key to advancement and innovation in research, marketing and production efficiencies. Most who are reading this issue of the *Maple Syrup Digest* have already done part of your job by being a recognized member of an association. Now your further task is to convince your neighbor of the benefits of maple association membership and for all of us to support the outreach and research bolstering "our way of life."

On behalf of the Delegates and Officers of the North American Maple Syrup Council, I am pleased to offer our best wishes for the holidays.

Kind regards,
Eric Randall, NAMSC President

In this issue...

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Cover photo: Vermont sugarmaker in his sugarhouse in Westfield. Photo by Leroy Alain, 1992.

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Research: Tapping

Is Tapping Below the Lateral Line a Good Idea?

Timothy D. Perkins, Mark Isselhardt, and Abby van den Berg,
University of Vermont, Proctor Maple Research Center

One of the primary factors limiting sustainable tapping practices in maple production is the size of the tapping band (Buzzell 1986, van den Berg and Perkins 2014). Tapping of trees with short droplines, excessively deep tapholes, larger 7/16" spouts, and multiple tapholes per tree over a period of time can lead to the development of inadequate sound wood to tap into. Maple producers can attempt to overcome this problem in several ways: by maximizing growth potential through thinning, by only tapping trees of an appropriate size, through the use of appropriate tapping guidelines (number of taps per tree and depth of tapholes), and by using a dropline of sufficient length (Buzzell 1986, Heiligmann *et al.* 2006, van den Berg 2012). Despite taking reasonable precautions, growth of trees is sometimes not fast enough to prevent the build-up of excessive zones of compartmentalization. The result of this is that producers begin to experience an increased incidence of tapping into stained (compartmentalized) wood, which is clearly a non-sustainable management practice (van den Berg et al. 2013).

Excessive compartmentalization leads to the problem of finding enough new fresh wood to tap, and may lead to a reduced sap-conducting capacity of the tree to supply the leaves with water for photosynthesis, culminating in reduced growth which only serves to further compound the problem. A relatively easy way for producers to know whether they are tapping into old wood is to periodically examine their drill shavings during tapping. Productive wood will be white or cream-colored and just slightly damp. Drill shavings that include a significant amount of tan or brown-colored wood is an indication that non-conductive wood was tapped into. Such tapholes are thought to produce lower sap flows.

With the use of vacuum, tapping below the lateral line might be a potential strategy for increasing the size of the tapping band, as it would increase the size of the tapping band and would decrease the probability of tapping into brown wood, therefore increasing tapping sustainability and reducing any losses in sap yield associated with tapping into stained wood. Consideration of tapping below the lateral line is a relatively recent development, thus there has been an inadequate amount of research to examine the possible benefits and drawbacks of employing this technique. One possible negative trade off in using this approach is that the vacuum level at the taphole is likely to be slightly lower. Furthermore, while sap should be able to be pulled upward through an inverted dropline with vacuum, the recently increased understanding of the importance of good sanitation in achieving high yields (Perkins *et al.* 2010, Perkins and van den Berg 2012, Childs 2010) suggests that increased microbial contamination of residual sap and increased backflow in inverted droplines might induce reduc-

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tions in sap yields. Thus it is important to understand the possible positive aspects as well as the negative consequences when considering tapping below the lateral line so that producers are able to fully assess the feasibility of this approach.

This research was conducted to determine whether tapping below the lateral line in vacuum tubing operations results in the same quantity of sap from a taphole as normal (above the lateral line) tapping, and thus whether tapping below the lateral is a reasonable management alternative which might be employed to increase the size of the tapping band in maple sap production. It will also inform us as to any tradeoffs (reductions) in yield that might result from this approach. A small reduction in yield might be a reasonable penalty to pay for a large increase in the size of the tapping band.

Materials and Methods

This study was conducted at the University of Vermont Proctor Maple Research Center in Underhill Center, Vermont, during the spring sap flow seasons of 2015 and 2016. Thirty-three large sugar maple trees averaging 17.8″ diameter that had been tapped for at least 50 years were used.

The trees were divided into three treatment groups:

- A control treatment with all taps placed above the lateral line with standard 5/16″ polycarbonate spouts.
- An experimental treatment with all taps placed below the lateral line with standard 5/16″ polycarbonate spouts.

- An experimental treatment with all taps placed below the lateral line using 5/16″ polycarbonate Check-valve spouts.

All droplines were 24″ long and had been previously used and cleaned with water. Spouts were new each year. One and a half inch deep tapholes were drilled for all treatments on the same day each of the two seasons. Trees with tapholes drilled above the lateral line were especially well inspected in an attempt to locate areas where it was deemed unlikely to encounter staining from previous tapholes. Drill shavings for each taphole were visually inspected during tapping for the presence of brown wood, indicating the taphole had penetrated into a compartmentalized area. Tapholes were drilled in the same compass quadrant each year to reduce directional variability in sap flow. Droplines were placed as nearly straight-up or straight-down (depending upon the treatment) as possible (Figure 1). The spouts in all below the lateral treatments were placed in an inverted position, with the tubing connection pointing upward, whereas the spout in the above the lateral treatment were placed in the regular position with the spout tubing fitting pointing downward. Each dropline was connected to its own lateral line which ran to individual 40 gal vacuum chambers.

Approximately 24-25″ Hg vacuum was pulled on each chamber. The vacuum pump remained on for the entire season. At the end of the sap flow season, chambers were opened and sap depth was measured with a meter stick and converted to volume. Sap sugar content was measured at the same time

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with a calibrated Misco refractometer. During the 2016 season, high sap production required about half the chambers to be opened mid-season and volume and sap sugar concentrations measured at that time and again at the end of the season. Total sap sugar concentration was volume-averaged in those cases.

Mean sap volume and mean sap sugar concentration were determined for each treatment for each season. The proportion of tapholes hitting stained wood was also determined, as was the mean sap volume and sap sugar concentration for tapholes hitting stained wood.

Results

The volume of sap produced in 2016 was considerably higher than in 2015, although less sweet, but the same patterns were observed in both seasons. Therefore, the results are presented as averages across both seasons.

Tapping below the lateral line produced approximately the same volume of sap (33.8 gal sap/tap) as tapping above the lateral (34.3 gal sap/tap), as long as the taphole above the lateral did not hit stained wood (Figure 2). Despite careful inspection during tapping, an average of about 8% of tapholes drilled above the lateral line hit some stained wood (the average of the previous two seasons was 13% for this area of the UVM PMRC sugarbush). None of the tapholes drilled below the lateral line hit stained wood. Tapholes with visible staining produced an average of 14.0 gal of sap, or only 40.8% of the amount of sap as a taphole not hitting stained wood. Stained wood does not allow sap to pass through, thus there was less fresh conductive wood area for sap to be generated from in tapholes with staining. Sap volume produced from such tapholes is likely to be proportional to the amount of staining hit by the taphole – the more stain encountered, the less sap produced. When these tapholes with stain are factored in, tapping above the lateral line produced, on average, about 10% less sap than tapping below the lateral line, representing a significant loss in yield and income for maple producers. Tapping below the lateral line using Check-valve spouts produced about 12% more sap (38.0 gal/tap) than tapping above the lateral, although the added volume did not achieve statistical significance.

Figure 1. Tapped trees showing dropline BELOW the lateral (left) and dropline ABOVE the lateral (right) treatments.

Neither tapping treatment, the use of Check-valve spouts, nor the pres-

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ence of stained wood affected the sugar content of the sap collected (Figure 3). Although both tapping below the lateral and tapping below the lateral with Check-valve spouts produced slightly less sweet sap, these averages were not statistically significantly lower than the sap sugar content in the above the lateral tapping treatment. It is likely that the natural trend towards slightly higher sugar content as one moves higher up on the stem is responsible for this observation. It is also worth noting that tapholes where old stain was encountered did not produce less sweet sap (although there was less volume), indicating that the conductive wood that was encountered in these tapholes produced sap of the same quality as that of a taphole where stained wood was not encountered.

Conclusions

Based upon these findings, tapping below the lateral line with good vacuum and good sanitation practices doesn't negatively affect sap yield or sugar content. Tapping into stained wood does result in large reductions in sap yield (and thus reduces producer profit), but doesn't impact sap sugar content.

Sanitation effects were small and non-significant in this study (note that the pump remained on the entire season and that no mechanical releasers were plumbed into the system, so backflow was very minimal), however we recommend that new spouts with periodic replacement of droplines should be used to maintain good taphole productivity, especially when tapping below the lateral line. The use of Check-valve spouts would be a further precaution that might give some additional benefit, especially in systems using mechanical releasers. Further, we recommend that the tubing connection of spouts tapped below the lateral line be oriented facing downward. This would help to provide a small air gap in the spout and tubing and reduce sap backflow and reintroduction of microbes into the taphole at times.

Tapping below the lateral line will place the spout and dropline closer to the ground and in so doing increase the chance of animal damage. It is also

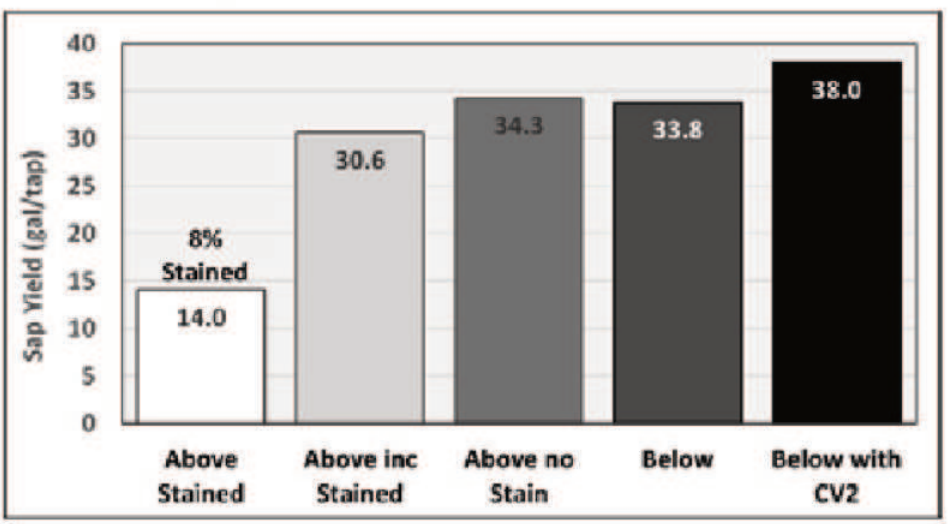

Figure 2. Average sap yield (gal/tap) for the 2015 and 2016 seasons by experimental treatment. Numbers within bars indicate sap yield (gal/tap) for each treatment. The number above the first bar indicates the average percentage of tapholes drilled above the lateral which contained at least some staining.

unknown from these results how the spout and dropline would react to a large snowfall during the season. Additionally, having sap remain in the line may increase the possibility of spout frost heaving. Producers should weigh the potential benefits while also considering that some practical issues may lead to unintended consequences.

Clearly tapping below the lateral expands the size of the tapping band, and is especially useful in those cases where historical use of large spouts, overtapping, and slow tree growth has led to difficulty finding adequate fresh wood to tap into. In such areas, tapping below the lateral might be a useful tool to reduce the probability of tapping into old stain, and thus increase tapping sustainability, sap yields, and producer profits.

Acknowledgements

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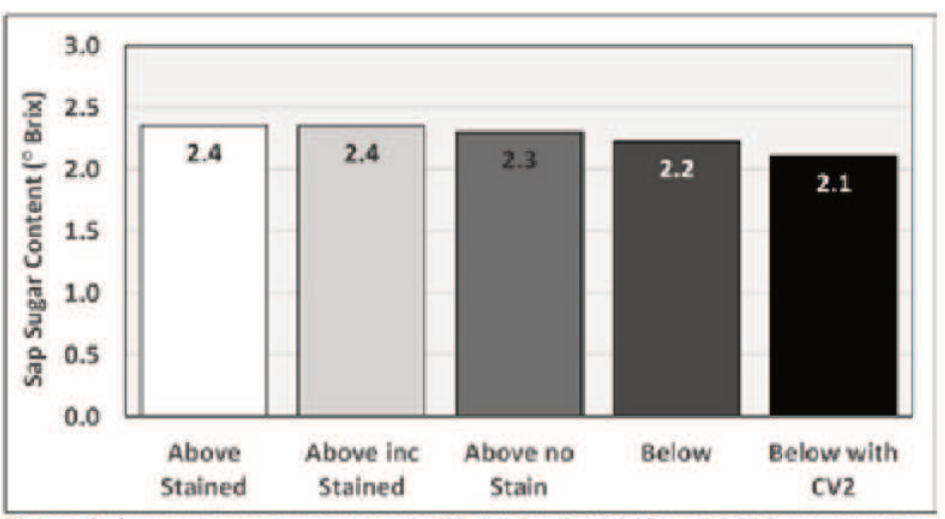

Figure 3. Average sap sugar content (°Brix) for the 2015 and 2016 seasons by experimental treatment. Numbers within the bars indicate the average sugar content for each treatment. Differences were not statistically significant.

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What do you want to know?

NAMSC's educational projects and our grants to researchers are meant to serve producers. To best meet the needs of the industry, we need to hear from you about what kinds of projects you'd like us to support. Please send your ideas to Winton Pitcoff, Research Committee chair, at editor@maplesyrupdigest.org.

Maple's Changing Story

Dr. Michael Lange, Associate Professor, Champlain College

It is no secret to any maple producer how important the story of maple is in selling a bottle of syrup. But why and how is a story important? And why and how can maple producers shape the story to best connect with potential customers? The first thing to understand is how stories work in the first place.

I'm an anthropologist and a folklorist, and I study stories for a living. I also used to work as a storyteller, giving me another window into how stories work. The most important thing to understand about stories is that they are communicative – they communicate, by sending out messages that someone else is supposed to receive, and make sense of. The hope and key to successful communication is that the sense the receiver makes of a story is pretty much the same as the sense the sender of the story is trying to get across.

For the past eight years or so, I've been doing research on maple syrup, primarily in Vermont, and I've been focusing on how people make and use the story (or stories) of maple. My research method, ethnography, involves going straight to the source – sugarmakers. I have spoken with sugarmakers all over the maple-producing world, including producers in every county in Vermont, as well as New York, Maine, New Hampshire, New Brunswick, Nova Scotia, Newfoundland, and of course Quebec. In these conversations, sugarmakers have taught me much and shared their ideas with me. These conversations have been especially useful in understanding the great changes that the maple industry and market are undergoing at the present moment. Change is nothing to new to sugarmakers, of course, but I have been paying special attention to the changes that maple has seen over the past few years, and among the things that have changed is the maple story.

There are many stories attached to maple, and every sugarmaker his their own story to tell, with the particulars of their family, or their sugarbush, or their evaporator rig, so to talk about "THE story of maple" is a little bit false. Likewise, there are many, many moving parts to the maple industry, and all those parts have a valid role to play in making, transporting, selling, and protecting maple, so many stories can be told there as well. The story of how many gallons per hour an RO unit runs is just as real and necessary as the story of when such and such a sugarhouse was first built in the 1800s.

So, in talking about "the maple story" I'm not talking about one unified and monolithic narrative that everyone shares and identifies with equally. The story I discuss here is a core narrative, widespread among many sugarmakers, which has central parts that are common across many different places and tellings. It's a generic story of maple, some version of which is widely known and used by many people when talking about maple. It's a story of 40/1, of 40° F during the day, of 40 acres of hillside. It's a story that sells maple.

The story that sells maple is well

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known. I have heard parts of it told hundreds of times by now, both to me and to others while I've been a bystander. It's a story of simplicity and straightforward processes, even if the realities of sugaring are much more complex. How many of you have told someone that it takes 40 gallons of sap to make one gallon of syrup? 40/1 is a number I have seen and heard more times than I can count, but every sugarmaker I know is well aware that that number is a bit of a lie. The "real" number is 43/1, and that's only true if your tree is putting out sap at 2% sugar concentration. The great variety of sap that the trees give means that the actual number of gallons needed to produce a gallon of syrup can vary wildly from season to season, from run to run, and from tree to tree. The story of 40° F is closer to the mark, but again, variations abound. A slope that faces south is going to warm up quicker than a north-facing one, so 40° may happen at very different times for different trees. And the realities of vacuum systems mean that what used to be a necessary temperature swing from freezing to 40° is no longer as necessary in the first place. Sugarmakers know these variations and complexities quite well. So why are they not part of the standard story of maple? Why will people be less inclined to buy a quart of syrup if the simplified story is not attached?

The story of maple is changing, at least in the telling. . . As any storyteller will tell you, the audience always shapes the story you tell.

Some of the reason is that when a consumer buys a bottle of syrup, they are not just buying it <u>because of</u> the story, they are in a fairly literal sense <u>buying the story</u>. Buying a consumer good is very often an experiential thing, and people want a very specific kind of experience. When a visitor comes into a sugarhouse, providing that experience is a straightforward task, and often takes care of itself. If there's a boil on, the evocative sights and smells of the steam rising from the pan or the sounds of the roaring flame and the roiling sap are enough of an experience to excite a mind and open a wallet. However, if a bottle of maple is simply sitting on a shelf, some other experience needs to take the place of standing next to the evaporator. The story of maple very often takes that place. It provides the consumer with a sense of the experiences involved in making syrup, and the more evocative that sense can be, the more likely that hearing the story will translate into an open wallet.

Simplicity in the story helps in two ways. First, a simple story is easier to digest and make meaning with. It's not just millennials whose attention spans are shorter these days, so condensing and simplifying a story has a better chance of grabbing and keeping a potential customer's attention (and cash). Second, a simple story suggests a story of simplicity, and simplicity is part of what people expect, and want, from maple syrup. The consumer wants a product that is non-industrial, non-mechanical, and non-technological, because so many parts of their lives feel industrialized and mechanicalized and technologized. A story of simplicity evokes a time and place that, for many consumers, is not when and where they live. Vermont. The Eastern Townships of Quebec. Wooded

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hills in New Brunswick and Maine. Such places are romanticized, thought to hold onto the past (disregarding the fact that the people who live in these places live very much in the present). The consumer wants to evoke that experience through a maple story, not the mechanized, technologized version of sugaring that involves plastic tubing and reverse osmosis.

So the maple story is one of a simple way of life, and a simple way of making syrup, and the story is told and retold by many people. That's not the only avenue through which the story of simplicity is delivered to the consumer though. This story of simplicity is abundantly evident on many of the standard bottles in which syrup is sold. The iconography on the bottles very often includes a man or men (women are nearly absent from the imagery of maple, despite the large and important presence of women in the making of maple) in a red checked coat, flannel hat, driving a team of horses to gather sap out of buckets, often wooden ones. This depiction is very much an older way of doing things, a way that hides the very wide spread of technologies such as plastic tubing, reverse osmosis, and vacuum systems from the consumer.

These kinds of containers, with these kinds of stories, have been the norm in many parts of the sugaring world for quite some time, but more recently, imagery has been diversifying. Some of the diversification is simply due to the ability to diversify – newer technology for designing, applying, and producing labels has brought costs down to the point that more people can design their own labeling and imagery. Rather than being tied into a standard design by the container options, more sugarmakers are opting to make their own labels, with their own choices in imagery. This option creates a more complicated story, by making it possible to have more stories told on the bottles. But another factor is also strongly at play in reshaping the maple story, first on containers, and eventually throughout the maple process.

Early on, I said that stories work by communicating, by transmitting an idea from a sender to a receiver through narrative. That's how it works, no matter who the sender is or who the receiver is. When the maple world was selling its syrup largely to itself (New England, Quebec, and eastern Canada), telling a story of the way "we used to be" was a straightforward process. Pretty much everyone in that part of

the world knows what flannel is, and knows how handy flannel is when stomping around in cold winter woods. So, a story that included flannel could easily and simply be told. It was a safe assumption that the person hearing it would understand. The simple story of maple didn't need to change because it was being told largely to a knowing audience. However, the major growth markets in maple aren't in southeastern Canada and the northeastern US; the fastest growth is taking place overseas, in places like Japan, Australia, and China. In these places, the audiences don't have the same memories of flannel jackets and wooden buckets. So, what is a simple story to understand in New Hampshire would need some translation in Japan, and not just language translation. The story would need cultural translation, and that makes it complicated. A horse team and wooden buckets doesn't automatically carry the same meaning or tell the same story outside of that corner of North America.

So, the same story that sells maple simply in one place, makes it complicated in another. When maple is primarily being sold in the one place, that's not a problem. But as more and more maple is being sold in another, and when the future growth market is in that other place, a different story needs to be told. The story should still be a simple one, but the simplicity needs to account for the translation across geography and culture. Many of the newer, individual labels on syrup containers now show trees, mountains, or other generalized or stylized images of nature. The natural world feels more universal, more widely understandable without the need for translation of specialized, regional knowledge. A leaf on a food con-

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tainer carries similar meaning, it tells a similar story, to someone in China as it does to someone in Nova Scotia. It's a simple story that works in both places.

The story of maple is changing, at least in the telling. In truth, the story is the same, but stories are told and heard, printed and seen by people. If some of the people hearing and seeing the story change, then the story changes too. So really what is happening is not so much the story itself changing in some fundamental way, but that the audience is growing. As any storyteller will tell you, the audience always shapes the story you tell.

The Work of Maple Associations

A panel discussion at the NAMSC annual meeting offered a number of suggestions for ways state and provincial associations can help their members.

Promote your members: A maple association's first priority should be to promote the work and products of its members. Second priority should be to promote the use of pure maple. The association itself should be as transparent as possible to the general public.

Printed materials: Offer a range of printed materials so that there's something available for every purpose. Wallet-sized cards for consumers, rack-sized brochures for displays, posters for hanging, bumper stickers, etc.

Distribution: Find allied organizations to distribute your printed materials: chambers of commerce, state departments of agriculture, tourism offices, visitors' bureaus with displays at rest stops, buy-local organizations, other agricultural support groups, etc.

Events: Hold 'kickoff' events at the beginning of the season and invite the governor and other local dignitaries.

Press releases: Look for reasons to send press releases to newspapers and TV and radio stations. During the season is obvious, but also think about sending one when the NASS survey numbers are released, or when there are contest winners to announce.

Working with the press: Help your members understand what messages to offer reporters when they call. Focus on positive stories. Even if it's a poor season, talk about how they're making excellent syrup and there will be plenty available for customers. Make sure that photos show clean, modern processes, rather than rusty taps.

Social media: Use Facebook to promote members' sugarhouses and events. Post recipes to demonstrate the versatility of maple syrup. Encourage members to 'like' the association's page, which will, in turn, give them lots of posts to share with their customers.

Website: Association websites should feature directories to steer consumers to sugarhouses. Pages with lots of recipes are also popular.

Messages: Connect maple messages with other popular themes, like buying local products to support the local economy, environmentally sustainable stewardship of land, and nutrition.

Ask Proctor

The UNIVERSITY of VERMONT
Proctor Maple Research Center

Filtering syrup in small batches is a huge pain. Any advice on how to make it easier?

You are not alone. Filtering small batches of syrup is often mentioned as one of the most frustrating aspects of sugaring. While not all syrup is created equal when it comes to filtering, it is important to recognize that not all filters available for syrup are created equal, either. Most small producers rely on cone or flat filters made of fabric (wool or synthetic). Producers whose daily production outgrows fabric filters overwhelmingly use pressure filters, primarily filter presses. Pressure filters use diatomaceous earth (or DE, also known as filter-aid) and are able to consistently achieve the greatest level of filtering. The cost of filter presses is often the largest barrier to adopting this technology. Very good results can be reached with fabric filters most of the time. Gravity filters, as they are also known, rely on the weight of syrup to drive the filtering process. While it's difficult to say with any precision how much syrup can be filtered in any given batch, producers should not expect to get much more than three gallons of syrup through a gravity filter before needing to change it.

Before talking about the filters themselves it's important to talk about what is being removed in the process. Filtering removes the suspended solids (commonly called sugar sand) that form during the boiling of sap into syrup. Sugar sand is a broad term used that is used to describe anything suspended in syrup and needs to be filtered out. Sugar sand is made of calcium salts of malic acid although there are many other minerals present in lower concentrations. The volume of sugar sand is variable from location to location as well as within a season. Sugar sand forms when the concentration of minerals reaches a saturation point in the syrup and precipitates out of solution.

Cone filters focus most of the syrup weight on the bottom of the cone. This results in syrup filtering rapidly at first and then slowing down as the weight of syrup left in the cone decreases. Cone filters have less total surface area than flat filters but enjoy greater head pressure than flat filters. It is generally producer preference as to which filter type is used but cone filters are probably the best solution for the smallest batches.

Gravity filter performance is impacted by several things: sugar sand form, syrup temperature and syrup density. Sugar sand can range from hard and gritty to a more soft or paste-type material. The type of sugar sand suspended in syrup has a direct impact on how well a filter will work. There are some days when the sugar sand particles are fairly large and uniform and filtering is easy. There are also days when the particles are so fine that they will not be removed by a gravity filter. When this happens the syrup will have a slight haze. It is possible that some of the sugar sand could settle to the bottom over time. However, it is more likely that the viscosity of the syrup will be

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high enough to keep that from happening. Typically the hardest syrup to filter is at the end of the season, when the sugar sand has taken on a soft, oily type consistency.

Syrup temperature is critically important to successful filtering. Syrup must be hot if it is to have a chance at moving through a cloth filter. For this reason, filtering syrup directly from the evaporator or some other heated container is very important. It also means that keeping syrup in the filter from cooling off rapidly is also important. Commercial or homemade filter tanks with covers can help to retain syrup heat and extend the time needed before cleaning a given filter. Anything that can be done to keep syrup from cooling rapidly will help.

Syrup that is above legal density will often have a tough time passing through the filter. Syrup that is below legal density may pass through the filter more easily, but will need to be boiled again afterwards and this will likely cause more sugar sand to form. The best practice is to double-check that syrup density is correct directly before filtering.

Producers can maximize the amount of syrup that will go through a given filter by using pre-filter material. This synthetic material is available as flat sheets or cones and is designed to catch large particles and debris that would otherwise clog the main filter prematurely. Many producers will use a stack of multiple pre-filters (3-4) and remove them individually as they become clogged with sugar sand. The syrup that remains in the filter can be then poured into the next pre-filter. It is important to moisten the pre-filters

before use.

Properly cleaning and caring for cloth filters will help prolong filter life and produce the highest filtering quality possible. Filters must be cleaned when hot syrup refuses to pass through. Only clean filters by rinsing with clean hot water. Avoid the temptation to twist or wring out the filters to dry since this can cause the fabric fibers to break and create an easy path for unfiltered syrup to travel. Pre-filters can also be cleaned and used many times. It's best to use the clarity of filtered syrup to judge when the time has come to replace a given filter.

Making sure syrup density is correct and that syrup is kept warm as it filters will produce the best results. Don't expect gravity filters to last forever. Eventually they will wear out and need replacement. Producers should also be careful about reheating syrup after its been filtered. This can lead to the formation of additional sugar sand and another round of filtering being needed. For pictures and more information about filtering check out the narrated slideshow "Fundamentals of filtering maple syrup" at the UVM Extension website www.uvm.edu/extension/maple/.

Ask Proctor is a 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.

Thank you to our Research Alliance Partners

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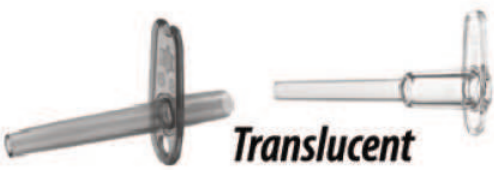

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Summaries of Research Presentations from 2016 NAMSC Annual Meeting

Managing For A Healthy Sugarbush In A Changing Climate.
Jared Nunery, Orleans, VT County Forester.

In a changing climate our forests are under a multitude of stressors which can be baffling and overwhelming to a land owner. Understanding these stressors and incorporating adaptive management strategies into forest management planning will help mitigate negative impacts of a changing climate to our forests. This talk discussed these stressors and management strategies for maintaining a resilient forest.

Maple Profitability Past, Present and Future.

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

Agricultural enterprises provide equal opportunity for profits or losses. In 2013 the Vermont Maple Business Benchmark project began conducting cost of production analysis with maple producers to advance information based decision making and support industry development. This presentation discussed the difference between financial success in one year and economic viability over the numerous years of a maple enterprise. Several key business topics facing producers and the broader industry were identified and discussed. The session drew on data from financial benchmarking with commercial producers in Vermont, market trends, industry considerations and strategic business planning themes coming from maple business owners.

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.

The use of commercial solutions of isopropyl alcohol (IPA) to sanitize the sap collection system has raised some questions since its adoption by maple producers. One of them concerns the possible leaching of chemical components of plastic material coming in contact with IPA. The main objective of this project was to provide research results from plastic residues testing to assess the possibility of finding such contamination in maple sap and syrup. These results on many samples of sap and syrup collected in 2014 and 2015 from sanitized and non-sanitized systems will be presented. This project was financed in part by the North American Maple Syrup Council Research Fund, the National Research Council of Canada, and Centre ACER.

It's Electric! Maple Evaporation Using Magnetic Induction Heating.
Francesco Aimone, Acerbev, LLC.

Magnetic induction (MI) is a heating method with potential to maximize the amount of raw energy captured as in-the-sap heat in maple evaporation. In other applications, MI heating achieves 95% efficiency in capturing energy to heating a food stream. This study evaluates a lab-scale magnetic heating system's ability to concentrate

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maple sap using a hyper-efficient, electric powered magnetic induction coil and shell-in-tube heat exchanger, along with various energy recapture methods. We describe the trial evaporator's design and suggest areas of improvement. The study's results of energy transfer efficiency are presented against theoretical baselines and current industry standards.

Flavor of Syrup From Ultra-High Reverse Osmosis Processing.
Abby van den Berg, Ph.D. Research Assistant Professor, University of VT.

Recently, new reverse osmosis systems capable of concentrating sap to very high levels, >30 °Brix, have been introduced. This technology has the potential to provide significant additional gains in processing efficiency and profitability, but the potential impacts on syrup flavor are currently unknown. Results of research conducted to address this question and investigate the flavor of syrup produced from sap concentrated to high levels by reverse osmosis will be presented.

Continued 3/16" Tubing Research.
Tim Wilmot, Researcher for Dominion and Grimm Inc. and retired University of VT Extension Maple Specialist.

Research with sap collection systems using 3/16" tubing has shown that the smaller diameter tubing can outperform standard 5/16" tubing in many arrangements that take advantage of natural vacuum generated on sloping land. Recent research has also shown that 3/16" tubing may provide some advantages over 5/16" systems in pumped systems. This presentation reviewed some of the more recent experiments related to these new sap collection systems.

Environmental and Biological Controls on Sap Sugar Content and Yield from Maple Stems.
Timothy D. Perkins, Ph.D. – Research Professor & Director, University of Vermont Proctor Maple Research Center.

Sap sugar content (SSC) and sap yield (SY) vary considerably from year-to-year. Although we understand in good detail how daily freeze-thaw conditions produce sap flow, how longer-term (monthly, seasonal and annual) climatic factors and biological factors (vigor, growth, masting) affect total SY and SSC over a season are far less understood. This project explored several factors thought to be influential in determining a good production season to assess which variables are most related to SY and SSC and which are not.

How Will Climate Change Affect The Maple Industry?
Timothy D. Perkins, Ph.D. – Research Professor & Director, University of Vermont Proctor Maple Research Center.

Because maple sap flows are dictated by daily fluctuations in temperature, any change in climate is likely to have significant effects on the timing and duration as well as on syrup yield from maple producing areas. This presentation examinef the trends in timing and length of the maple season over the past 50 years, and discuss possible future scenarios for sap flow and syrup production.

Rapid Cooling Maple Syrup When Making Maple Candy and Cream Using Vacuum.
Steve Childs, New York State Maple Specialist, Cornell University.

This session presented new data on using vacuum to rapidly cool syrups that have been cooked to high tem-

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peratures for the production of maple candy and maple cream. The cooling is uniform so the batch does not have the issues of being hotter in the center but cool on the edges. Issues of the batch forming crystals during the cooling period are eliminated or significantly reduced. Methods of creating the vacuum and protecting the vacuum pump from the steam were examined and the resulting product quality was demonstrated.

Exploring the Influence Of Acid Rain On Sugar Maple Health And Productivity.

Paul Schaberg, USDA Forest Service, Northern Research Station.

Pollutant inputs of sulfur and nitrogen cause acid rain that leaches nutrients (especially calcium) from regional forests. This nutrient depletion reduces the tolerance of sugar maple to stress (e.g., insect defoliation, drought, etc.) and predisposes trees to reduced woody growth and increased crown dieback. Paul summarized research that has helped to identify the causes and consequences of acid rain's impact on sugar maple biology, and presented a computer model that may help identify locations where sugar maple health and productivity are at greatest risk.

Do Invasive Earthworms Affect Sugar Maple Regeneration?

Josef Gorres, Ph.D. Associate Professor of Plant and Soil Sciences, University of Vermont.

Most earthworms in the northeastern USA are exotic species. Some of these are also invasive. They are regard-

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ed as positive influences on soil quality in agricultural soils. Yet, they are destructive in northern hardwood forests as they modify the humus structure of the forest floor and thus the seedbank for many species typically browsed by deer. In doing so they increase the browsing pressure on tree saplings, potentially reducing the regeneration of Sugar Maple forests. The presence of several species of earthworms are being shown to be especially detrimental to regeneration. These are species in the genus Amynthas and L. terrestris. In Vermont Sugar Maple regeneration was negatively affected by these species. While first year saplings were frequently found in these forests, older saplings were frequently not present. Generally in our surveys, earthworm presence was associated with less biodiversity in sugar bush. These findings on the association of earthworms and decline of biodiversity in forest vegetation are similar to those of other studies in the northern, formerly glaciated tier of the USA.

Dear maple syrup producers, are you concerned about climate change?

The research consortium Ouranos, the SUNY ESF, the Proctor Maple Research Center and extension of the University of Vermont and the Federation of Quebec Maple Syrup Producers are working together to document the American and Canadian maple syrup producers' perceptions and concerns regarding climate change. A document presenting a synthesis of the results and a review of the knowledge surrounding the impacts of climate change on maple syrup production will be released in 2017.

To share your opinion, take an easy 15 minutes web-based survey by following this link: goo.gl/ntAM6E

News Round-Up

New Brunswick: The governments of Canada and New Brunswick delivered good news for maple syrup producers in the Madawaska and Restigouche regions by announcing total investments of more than $10 million to complete 25 projects. https://goo.gl/RVr5K3

California: Another lawsuit has been filed against a company that falsely names its products, suggesting that they contain premium ingredients, including maple syrup. https://goo.gl/DvGjjp

Quebec: Guilty verdicts in trial of men accused of stealing millions of dollars of syrup in 2012. https://goo.gl/RLi7UW

Quebec: The government of Canada announced grants of more than $1.2 million to help the maple syrup industry promote the properties and benefits of maple products on the domestic and international markets. https://goo.gl/wofotL

Canada: H2O Innovation has received a patent for its system to produce a high concentration maple sap process. https://goo.gl/jkuOav

Minutes of the 2016 NAMSC Annual Meeting

October 26-28, 2016, Burlington, VT

The 57th annual meeting of the North American Maple Syrup Council (NAMSC) was hosted by the Vermont Maple Sugar Makers Association. The theme for the convention was "Celebrating Real Maple."

The conference was held in conjunction with the 42nd annual meeting of the International Maple Syrup Institute (IMSI). Meetings began on Tuesday, October 25 with the NAMSC and IMSI Executive Committees discussing issues facing their respective organizations. An informal Board meeting which included the officers, delegates, alternate delegates and committee members of NAMSC met the following day. The IMSI Board of Directors meeting and maple research extension meetings were also held on Wednesday.

There was a well represented equipment trade show and Eighteen (18) Technical Sessions on topics from the "Effect of Climate Change on the Maple Industry," to "3/16" tubing research," to "Creating & Implementation of a Marketing Plan."

Dr. Eric Randall, president of NAMSC opened the 2016 Annual Meeting by discussing the transfer of maple information. J. Mark Harran, president IMSI and Henry Marckres, Consumer Protection Chief and Maple Expert for Vermont Agency of Agriculture, Food and Markets welcomed everyone to Vermont. Marckres explained his agency is in charge of water quality corrective measures, 3rd party inspections of sugarhouses (voluntary) and inspecting 12,000 hydrometers per year!

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

Delegates and Alternates included:

- Maple Syrup Producers Association of Connecticut; J. Mark Harran (D), Robert Dubos (A)
- Indiana Maple Syrup Association; David Hamilton (D), Silas Beachler (A)
- Maine Maple Producers Association; Lyle Merrifield (D), Kevin Brann (A)
- Massachusetts Maple Producers Association, Inc; Winton Pitcoff (D), Melissa Leab (A)
- Michigan Maple Syrup Association; Debbi Thomas (D), Larry Haigh (A)
- Minnesota Maple Producers Association, Inc; Ralph Fideldy (D), Stu Peterson (A)
- New Brunswick Maple Syrup Association, Inc; David Briggs (D), George Roirdon (A)
- New Hampshire Maple Producers Association; Bill Eva (D), Dave Kemp (A)
- New York State Maple Producers Association; Dr. Eric Randall (D), Lyle Merle (A)
- Maple Producers Association of Nova Scotia; Avard Bentley (D)
- Ohio Maple Producers Association; absent
- 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), Robert Burdick (A)
- Vermont Maple Sugar Makers Association; Matthew Gordon (D), Pam Green (A)
- West Virginia Maple Syrup Producers Association; Tom Darnall (D), Mark Bowers (A)
- Wisconsin Maple Syrup Producers Association, Inc; James Adamski (D), Joe Polak (A)

Secretary Polak reported 16 member states and provinces were present and 1 absent.

The minutes of the 56th Annual Meeting held at Seven Springs, PA were presented as written by J. Polak. M/S W. Pitcoff/D. Hamilton. Passed.

Financial Report: The Report of the NAMSC General Fund FYE August 31, 2016 was presented by J. Polak, treasurer as follows:

- Funds in checking account: $31,918.42.
- Cash receipts $70,961.00 and disbursements were $59,311.91, leaving net gain of $11,649.09.
- Income is based solely on dues from member states and provinces. $22,676.00 was billed last year, an increase of $1,620.00.
- *Maple Syrup Digest* receipts $37,572.88 and disbursements were $28,106.36 with a net gain of $9,466.52.
- Total balance of investment accounts (CD's) $98,797.34
- NAMSC Research Fund balance in savings account: $63,910.39. Receipts $38,683.15 and disbursements were $44,472.76.

M/S D. Thomas/B. Eva, motion accepted subject to Audit/Review committee report. Passed.

NAMSC President Eric Randall and NAMSC Executive Director Mike Girard presented Kathryn Hoplkins of the University of Maine with the Richard G. Haas Distinguished Service Award.

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

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needed basis. Contact Winton Pitcoff or committee member with suggestions for future research study.

The NAMSC Research Fund Committee reviewed and funded three (3) Research Proposals totaling $42,019.00

- Exotic, Invasive Earthworms: A Clear and Present Danger to Regeneration in our Northeastern Sugarbushes - Proposed by Bruce Parker and Margaret Skinner, Univ. of VT, Plant and Soil Science Josef Gorres – Funded year 3 of 3 for: $16,339.00

- Effect of Chemical descaling of evaporator back pans during the season on properties of maple syrup – Proposed by Fadi Ali, ing, PH.D., Centre Acer, Quebec – NAMSC Funded: $10,680.00

- Modeling the Freeze – thaw process in maple sap exudation: validation and optimization studies – Proposed by John Stockie, Simon Frasier University, Burnaby, BC - Funded $15,000.00

M/S L. Merrifield/B. Eva, motion to fund as recommended with proof of matching funds. Passed.

M/S W. Pitcoff/D. Thomas, motion to fund Stockie research without proof of matching funds. Passed.

***Maple Syrup Digest* Report:** W. Pitcoff reported the *Maple Syrup Digest* is doing well financially. This is due to a savings at the printer and additional advertisers. If dealers are willing to promote the *Digest* they are encouraged to request copies for dissemination. Winton requested reports and photos from state and provincial associations for future issues. 4,500 copies of the *Digest* are distributed each issue.

Finance and Budget Committee report: J. Polak presented the NAMSC budget for 2016-2017. The budget is expected to increase $1,275.00 from last year. This assumes all accounts receivable are realized in the 2016 and 2017 fiscal years.

Executive Director's Report: Strategic Plan: Executive Director M. Girard reported copies of the annual update of the NAMSC Strategic Plan are in the NAMSC book. He reported that our mission and vision statements have not changed. We began to formulate the plan in year 2000 and it has been updated annually. This Plan is a formal approach to the management and planning of the Council. M/S, D. Thomas, L. Merrifield, to approve the changes. Passed.

Education Report: President E. Randall reported that when USDA, Forest Service, Extension, and Research individuals who serve the maple industry retire or are moved to other positions, two of the three positions are eliminated. The Council's new Education Committee is planning to develop means of educational outreach to syrup producers in the coming year. The Council allocated $20,000.00 of its 2017 budget to develop and provide education in several media formats for syrup producers on production methods, sap and syrup quality, forestry management and more. The *Maple Syrup Digest* and the NAMSC website will also be a means of distributing educational programs to producers. Also, the NAMSC is participating in the current effort to update the next edition of the *North American Maple Syrup Producers Manual*. M/S W. Pitcoff/B. Eva to approve expenditure of up to $20,000.00 for education with Executive Committee approval. Passed.

NAMSC Job Descriptions and Committee Guidelines were revised to bet-

NAMSC President Eric Randall and NAMSC Executive Director Mike Girard presented David Hamilton of the Indiana with the NAMSC Special Recognition Award.

ter represent the way the Council presently operates. Notably, an Education Committee was established and several smaller committees were merged into the Communications Committee. M/S, D. Briggs/R. Fideldy, to approve changes. Passed.

Communication Committee: K. Zander is making communication easier through an online central list of industry contacts on our website. Digitizing the past issues of the Maple Syrup Digest was completed over the past year and all issues from January 1962- December 2015 are now indexed and available at www.maplesyrupdigest.org or www.mapledigest.org. The website is now able to be accessed with smart phones and iPads.

International Maple Month: W. Pitcoff reported the NAMSC and IMSI will continue working together on establishing March as International Maple Syrup Month. Last year's promotional efforts included inviting local maple associations to assist promoting maple month and reaching the public through magazines, brochures, news releases, web and other electronic media. Ads were placed on Facebook. Results were reported to be less than expected, but it was the first year and both the IMSI & NAMSC agreed that continuing the program for next spring is well worth the effort. Winton suggested that next year's goals include encouraging manufacturers and dealers to help with promotion, sending a joint letter to state/provincial ag tourism agencies, inclusion of Citadelle information, and continuing to work to get information to the pubic not just the industry.

Convention Committee: J. Polak stated M. Girard has summary reports and electronic files for the last four (4) annual conventions and that this information would be helpful for future host states in planning their conventions. T. McCrumm (MA) volunteered to assemble a meeting planning file together with photos for the Council. M. Girard will work with Tom on this.

Maple Hall of Fame Committee: R. Norman reported that Henry Marckres, VT and Yvon Poitras, NB were inducted into Hall of Fame in 2016 in Croghan NY and that the 2017 inductees will be announced at the Banquet.

***North American Maple Syrup Producers Manual*:** Dr. Tim Perkins, UVM

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reported that the *North American Maple Producers Manual* is in the process of being updated. There are several sections that are being brought up to date and one section being added. The work is being done by volunteers and has experienced some delays. Dr. Gary Graham of Ohio State University has been selected to be the conduit between the editors and Ohio State University. Dr. Perkins is taking the lead on this updated edition with the estimated completion date of the manual expected to be fall 2018.

The IMSI Market Strategy Implementation Plan: The NAMSC voted to support a long term marketing strategy developed by the IMSI that was presented to the delegates in Pennsylvania. This is the implementation part of the IMSI's marketing plan. Motion to approve as presented in the NAMSC Conference Book, M/S B. Eva/R. Fideldy to accept implementation plan as presented. Passed.

The North American Maple Contest Guidelines: Authored by Dave Chapeskie, the 28 page guidebook on judging maple syrup and confections is intended to be a voluntary guide that could help establish and standardize judging practices at the state and provincial level. The Council approved the set of judging guidelines and procedures as presented in the NAMSC Conference Book. M/S W. Pitcoff/T. Buck to approve. Passed.

American Maple Museum: M. Girard reported that the North American Maple Syrup Council and the American Maple Museum have partnered on a new project at the museum in Croghan, NY. The project is a result on ongoing discussions with the museum Executive Director Christine Colon and their board of directors on relocating the Maple Hall of Fame Exhibit from the basement of the museum to the 2nd floor. The 22′ x 30′ room is the last vacant room in the building and requires complete renovation. The room will include interactive exhibits with pictures of all (presently 87) Hall of Fame inductees. There will also be display of maple sugaring in the modern era.

The Museum requested $10,000.00 from the NAMSC in the form of a proposal which was presented to the Council delegates for consideration and approval. The proposal outlined that the funds would be used primarily to assist in the costs of renovating the room and any remaining funds will be used in the upgrade of the exhibits in the room. The completely renovated room would be named the "North American Maple Syrup Council Room." The NAMSC Delegates reviewed and asked to vote to approve that the contributions for the project of $5,000.00 from the Richard G. Haas Fund and $5,000.00 from the Elmer Kress Fund. The contributors to the room renovations and new exhibits would be acknowledged in the form of names on a plaque and possibly a small historic display in recognition Elmer Kress, (Kress Jug) and Richard Haas, (Sugarhill containers). The type and placement of contributor recognition would be mutually agreed upon between the Museum and the NAMSC Executive Committee. The renovations are expected to be complete for the opening of the Museum the 2nd weekend in May. M/S, D. Hamilton/L. Merrifield to approve. Passed.

American Maple Museum – additional funding: After further discussion by the delegates, there was a motion made that the Council contribute

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up to an additional $5,000.00 from the Willits Fund. These funds would be specifically for audio / visual equipment for the NAMSC Room funded with the advance approval of the NAMSC Executive Committee. M/S, A. Bentley/D. Briggs to approve spending additional $5,000.00 from the Willits fund to finance communication equipment and electronic exhibits in NAMSC room. Passed.

USDA NASS Maple Industry Statistics: Gary Keough, director of USDA's New England field office, reported that Minnesota, Indiana and West Virginia were added to the list of states surveyed. 4.2 million gallons syrup was produced in 2016, a 23% increase. 12.5 million taps were placed, a 3.5% increase. 3.685 pounds per tap average production. The earliest flow was January 1. Vermont is leading all states by adding taps at a higher rate. $126 million is value of maple crop. Connecticut producers realize average $90.00 per gallon retail. 140 million pounds is world production. 35% of US taps are certified organic. Angie Considine, Statistician at USDA is back working compiling maple data for NASS. For more information www.nass.usda.gov go to Publications link, Calendar, June Crop Report. Also check Quick Stats.

Maple Research Specialist Committee: Mark Isselhardt, UVM Extension, reported that fifteen (15) research and extension people attended the meeting. There continues to be a steady decline in number of researchers and extension personnel. Also reported decline in funds to support maple and forestry research.

Maple Grading School: Kathryn Hopkins, Extension Educator, University of Maine, reported on the status of the school which was established 14 years ago. Requests to hold the next school has been received from New Brunswick and they may also hold a school in Nova Scotia in 2017.

Maple Statistics: Dr. G. Graham updated world maple statistics printed 2012. Copy provided in the NAMSC Conference book.

Audit Committee Report: The Audit/Review committee chair reported that the books were in order.

Nominating Committee Report: D. Hamilton reported for the nominating Committee and nominated the officers as follows: Eric Randall, NY, President; D. Briggs, NB, Vice President; J. Polak, WI, Sec./Treas. There were no nominations from the floor. M/S, J. Adamski/L. Merrifield, to approve. Passed.

Associate Members: D. Hamilton reported for the nominating Committee and nominated the Associate Members as follows for a three year term expiring 2019. These individuals are non-voting members who may serve on committees. Garth Atherton, VT, Dr. Brian Chabot, NY, Steve Childs, NY, Wes Schoepke, WI, Corey Grape, WI, Brad Gillilan, T, Dr. Michael Farrell, NY, Maurice Giguere, Jean Marie Chabot, Bruce Bascom, Luc Lugace, Alfa Arzate, Brian Stowe, Mark Isselhardt, Dr. Tim Perkins, VT, Dave Chapeskie, ON, Bill Robinson, ON, Keith Ruble, IN, Tom Zaffis, QC, Frank Vella, NY, Yves Bois, QC, John Stockie, BC, Jesse Randall, IA and Rick Marsh, VT. Lyle Merle, NY. M/S, D. Hamilton/W. Pitcoff to approve. Passed.

Life Members: D. Hamilton reported for the Nominating Committee and nominated the Life Members as follows

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Bruce Gillilan, VT and Jean Francois Goulet, QC. M/S, D. Hamilton/B. Eva, to approve. Passed.

Executive Director: E. Randall appointed Mike Girard, CT as Executive Director with the majority approval of the Board. M/S, D. Hamilton/C. Pichette, to approve. Passed.

Committee Appointments:

Audit Committee: David Briggs, chairman, Debbi Thomas, Jim Adamski, and Cecile Pichette.

Education Committee: Karl Zander, chairman, Ralph Fideldy, Winton Pitcoff, Steve Childs, Jesse Randall, and Missy Leab.

Communications: David Briggs, chairman, Winton Pitcoff, Karl Zander, Debbi Thomas, Dave Hamilton, Mike Girard, and Eric Randall.

Convention Planning: Joe Polak, chairman, Ralph Fideldy, Matt Gordon, Michel Labbe, Dave Kemp, and Mike Girard

Finance: Jim Adamski chairman, Dave Hamilton, Joe Polak and Avard Bentley, Lyle Merrifield, and Mike Girard.

International Maple Month: Winton Pitcoff, chairman, Karl Zander, Lyle Merrifield, Tom Buck, and Mike Girard.

Strategic Plan: Mike Girard, chairman, Winton Pitcoff, David Briggs, Joe Polak, Matt Gordon Jim Adamski, and Lyle Merrifield.

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

Nominating: Dave Hamilton, chairman, Debbi Thomas, Larry Hamilton, and Cecile Pichette

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

Future Host States & Provinces:

2018 New Hampshire
2019 Minnesota
2020 Wisconsin
2021 New York
2022 Massachusetts
2023 Maine
2024 Michigan

Quebec 2017: C. Pichette welcomed everyone to Levis, Quebec, October 27, 2017. The 58th annual meetings will be held at the Four Points Hotel.

Adjourn: M/S, K. Ruble/C. Pichette.

Banquet Program and Recognitions:

Maple Hall of Fame Inductees - Richard Norman, Chair of the Hall of Fame Committee reported on 2017 Hall of Fame recipients, which are Tom McCrumm of Ashfield, MA and John Henderson, from Ontario. The induction ceremony will be the held in Croghan, NY on the 2nd Saturday in May.

NAMSC Special Recognition Award was awarded to David Hamilton. David has been actively involved in the maple industry both locally and internationally. He has served as a delegate to the NAMSC and served on several committees including Bylaws Committee and Strategic Planning Committee. He served as vice president, and then as president in 2014-2015 and is currently immediate past president. Dave

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was notably the first president from Indiana. He is a longtime syrup producer who, along with friends and family, operates the Rutherford Sugar Camp in New Castle, IN. He is a charter member of the Indiana Maple Syrup Association and has served as vice president, secretary, treasurer and editor of IMSA's newsletter "Tapline."

NAMSC Richard G. Haas Distinguished Service Award was presented by Eric Randall and Mike Girard to Kathryn Hopkins, ME. This award was given to a deserving individual that has done outstanding research for the maple industry and Extension education. Kathryn has worked for the University of Maine in a variety of capacities since 1993. Since 1997 she has been responsible for agriculture and natural resources programming in her county and statewide. She is a reliable source for the Maine maple industry including coordination and presenting training workshops. She is one of the creators on the Maple Grading School that has been conducted annually for the past 12 years throughout the maple belt. Kathy is a longtime Associate Member of the North American Maple Syrup council, and is a director of the IMSI and Maine Maple Producers Association. She authors educational material and conducts research on maple syrup, sap, and syrup production issues, and has actively participated in maple research funded through the NAMSC Research Fund. Her many years of research and Extension efforts have benefitted sugar makers throughout the maple belt which has helped ensure the sustainability of production practices and pure maple syrup quality.

2016 NAMSC Maple & Photo Contest Winners

Maple Syrup

Golden Color / Delicate Taste: Charles Pattee, Pattee Family Sugar Shack, Enosburg, Vermont

Amber Color / Rich Taste: Steve Plume, Love's Sweetness Maple, Holstein, Ontario (also best in show)

Dark Color / Robust Taste: Steven Wood, Wood's Maple Orchard, Elmwood, Wisconsin

Very Dark Color / Strong Taste: Steven Wood, Wood's Maple Orchard, Elmwood, Wisconsin

Maple Products

Maple Candy: Ralph Fideldy, Timbersweet, Cohasset, Minnesota

Maple Cream: Melissa Leab, Hancock, Massachusetts (also best in show)

Maple Sugar: Dan Brown, Bonhomie Acres, Fredricksburg, Ohio

Photographs

Maple's Roots: Brian Klebenow, Klebenow's Sugarbush, Merrill, WI

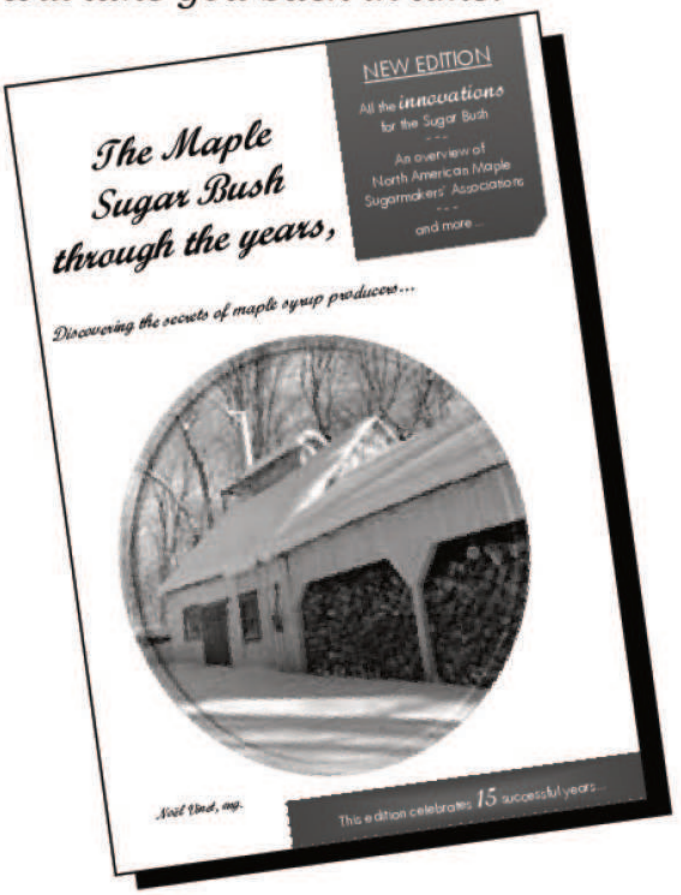
Next Generation: Brian Klebenow, Klebenow's Sugarbush, Merrill, WI (also best in show)

Real Maple Cooking: Aggie Sperry, Gingerich Bros., Chardon, OH

Creative: Megan Davis, Davis Family Maple, Underhill, VT

New Year Gift

You want to know more about maple sugar bushes, the discovery of maple syrup by Native Americans and all the secrets of maple syrup producers... this book is for you and will take you back in time.



This book will inform you about:

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- The maple sugar bush and its treasures; the magical maple tree,
- All the secrets of the transformation of maple syrup,
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Book Price: $59.95 plus $12.50 for shipping and handling web site: www.horsepowerlogging.com

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Highlights from the IMSI Annual Meeting
Burlington, Vermont, October 2016

The International Maple Syrup Institute held its quarterly Board of Directors meeting and its Annual General meeting at the Hilton Hotel in Burlington, Vermont on Wednesday, October 26th and Thursday, October 27th respectively.

2016 Maple Crop – Supply, Demand and Pricing

Representatives from the different states and provinces 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.

The Regis des Marches Agricoles et Alimentaires du Quebec, a marketing board in Quebec, approved the allotment of an additional five million taps over a period of two years to be allocated to both existing and start-up operations in Quebec. About 72% of this allotment will go to existing maple producers and the remainder to start-ups. 18% of the new taps will be on Crown land and the remainder on private land. An additional allocation of taps is possible in the future if requested by maple industry representatives in Quebec. The Regis has also authorized the Federation to increase quotas allotted to Quebec producers as is deemed necessary in the future. It is also noted that significant expansion of taps is also planned in the province of New Brunswick over the next few years.

In 2016, continued growth of markets for both Grade A and Processing Grade maple syrup are helping to maintain balance despite production increases. Sales of maple syrup remain strong and are increasing by as much as 5 to 10% per year in some areas. Prices continue to remain stable but there is uncertainty regarding whether or not this stability will be maintained in the medium and longer term. The maintenance of a strategic reserve of about 60 million pounds of syrup in Quebec has helped maintain price stability in the marketplace over the years. A factor which can affect pricing and profitability, which is very unpredictable, is the Canadian-US exchange rate and this should be closely monitored. While markets for maple syrup remain strong, it was reported by some representatives at the meeting that wholesale profit margins are thin and could deteriorate further, depending on the exchange rate and other market factors.

The supply of certified organic maple syrup in Quebec has increased from about 22% of bulk syrup in 2015 to an estimated 26% in 2016. It was reported that 85 maple producers obtained their organic certification over the past year and others are expected to become certified over the next several years due to the price premium for certified organic syrup and expanded market opportunities, especially in overseas markets. It is expected that the increase in certified organic operations should keep pace with market demand for certified organic syrup.

It is believed, by some meeting participants, that annual growth in world consumption of maple syrup is current-

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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.

Research Alliance Partners

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Haigh's Maple Syrup & Supplies LLC
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Indiana Maple Syrup Association
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MA Maple Producers Association
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VT Maple Sugar Makers' Association
WI Maple Syrup Producers Association

Please thank them when you do business with them.

Research Fund Contribution Form

Name _____

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Phone _____ Email _____

Amount of Contribution _____containers x $.01 = $_____

Suggested Contribution is $.01 per Container. Send to Treasurer Joe Polak at the address below.

For more information contact:

Winton Pitcoff, Chairman: PO Box 6, Plainfield, MA 01070
413-634-5728, editor@maplesyrupdigest.org
Joe Polak, Treasurer: W1887 Robinson Drive, Merrill, WI 54452
715-536-7251, fax 715-536-1295, joe@maplehollowssyrup.com

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

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ly about 10 million pounds. At this level, growth in markets may not be sufficient to fully absorb yield increases due to added taps, if overall yields remain as high as in 2016. This points to the need for continued and enhanced efforts in marketing maple syrup so that demand is maintained in reasonable balance with supply going forward.

Marketing Strategy for Real Maple Products

In 2015, both the Board of Directors of the IMSI and the NAMSC endorsed a marketing strategy for maple syrup primarily focused on North America. The IMSI has now 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 IMSI has also developed a marketing implementation plan (MIP), which outlines a number of work activities that would be beneficial to the maple syrup industry.

Two working groups have been established to focus initially on the development of a slogan and 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.

OMNI-IMSI Partnership Project

The OMNI-IMSI Maple Promotion was launched on May 30 and ran through to September 5. Maple was featured in OMNI Restaurants, in specially created cocktails at poolside, in spas, and in gift shops. David Morgan, Vice President of Food and Beverages at OMNI Hotels and Resorts provided the meeting with a final report for the project. The project was very successful and met the IMSI's objectives to promote real maple. David mentioned that 36 different new maple dishes had been featured in OMNI restaurants and there were about $70,000 in sales of maple cocktails at poolside. Media coverage was excellent and included a feature article by the *Wall Street Journal*. It is noteworthy that OMNI Hotels plan to continue featuring maple in their hotel chain in the future, building off of the successful collaborative marketing effort with the IMSI.

Nutritional Labelling – Proposed Harmonization and FDA Definition of "Added Sugar"

Current nutritional labeling of maple syrup is quite variable so there would be a significant advantage to having harmonized labelling specifications ready for the roll out of the new FDA requirements. Harmonization would set one standard for industry application in the United States, removing inconsistencies and some confusion which is associated with existing labels. The IMSI has facilitated follow-up with a team of Maple Quality Assurance Specialists employed by maple packers and maple researchers from both Canada and the United States, with the aim of coming up with standardized nutritional label specifications. A draft harmonized nutritional label for use in the United States and possibly internationally was developed In October. The IMSI forwarded the proposed draft label to both the FDA and Health Canada, requesting comment.

Serious concern has been expressed regarding the FDA's requirement for

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"Added Sugar" language to be placed on the label of maple syrup in the United States once the new FDA rules are effective. The IMSI established a team, led by Emma Marvin, Co-Owner of Butternut Mountain Farm, to work on addressing this issue. In October, the IMSI Task Team met by teleconference with FDA officials and presented several options which would address concerns regarding the "Added Sugar" line. The IMSI is now awaiting a response from FDA.

North American Maple Contest Guidelines

The IMSI has worked cooperatively with maple educators in Canada and the United States as well as the North American Maple Syrup Council to prepare uniform contest guidelines for use by judges at the various contests (e.g. Royal Winter Fair, Agricultural Fairs, etc.) in both Canada and the United States. In particular, there was a need to ensure that the contest rules are consistent with the new international classification and grading system for maple syrup. A copy of the new North American judging guidelines can be obtained from the IMSI's Executive Director upon request.

IMSI Annual Awards

Genevieve Beland of St. Hyacinthe, Quebec was the recipient of the IMSI's Lynn Reynolds Memorial Leadership Award for her exemplary contributions to marketing real maple products in the North American and International Marketplace.

Turkey Hill Sugarbush Ltd. of Waterloo, Quebec was the recipient of the IMSI's 2016 Golden Maple Leaf Award for innovation and marketing of high quality real maple products in the international marketplace.

IMSI Executive Officers for 2017

President – Ray Bonenberg (Ontario)

1st Vice-President – JF Goulet (Quebec)

2nd Vice-President – Pam Green (Vermont)

Treasurer – David Campbell (New York State)

Past-President – Mark Harran (Connecticut)

Executive Director – Dave Chapeskie (Ontario)

New York State Maple Conference

The 2017 New York State Maple Conference is scheduled for January 6 and 7, 2017 at the Vernon-Verona-Sherrill (V.V.S.) High School, in Verona, New York. Last year, more than 1,000 people attended the show with 42 of the top maple presenters in North America, 35 workshops, and the maple industry's best manufactures, dealers, and vendors with more than 100 displays of maple supplies. For details on this year's event, see http://www.nysmaple.com/ny-maple-producers/2017VVS/30.

Thank you to the VT Maple Sugar Makers Association for hosting a great annual conference, and for raising more than $10,000 for the NAMSC Research Fund! See everyone in Quebec next year!

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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.

You can give a dollar amount or a percentage or your estate, or you can list NAMSC as the beneficiary of your bank accounts, retirement plan or life insurance. 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.

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