# Maple Syrup Digest

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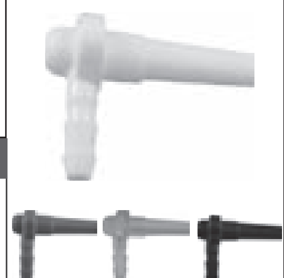

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# MAPLE SYRUP DIGEST

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**Phone: 603-783-4468 • Fax: 603-783-9953 • Email: mapledigest@tds.net**

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## *NORTH AMERICAN MAPLE SYRUP COUNCIL DIRECTORY OF OFFICERS*

**DAVID HAMILTON, President —** 6025 N100 East, New Castle, IN 47362
**765-836-4432 • E-Mail: dave@rutherfordsugarcamp.com**

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### DIRECTORS

***J. Mark Harran* —** 79 East Chestnut Hill Rd., Litchfield, CT 06759
**860-567-3805 • E-Mail: jmharran@aol.com**

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**207-892-5061 • E-Mail: merfarm@aol.com**

***Winton Pitcoff* —** 27 S. Union Street, Plainfield, MA 01070-9768
**413-634-5728 • E-mail: winton@massmaple.org**

***Larry Haigh* —** 6903 S. Lacey Lake Rd., Bellevue, MI 49021
**269-763-3107 • E-Mail: lehaigh@voyager.net**

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**218-326-0614 • E-Mail: timbersweet@hotmail.com**

***David Briggs* —** 2979 Main Street, Hillsborough, NB E4H 2X9 Canada
**506-382-3380 • E-Mail: dsbriggs@nbnet.nb.ca**

***Hank Peterson* —** 28 Peabody ROW, Londonderry, NH 03053
**603-432-8427 • E-Mail: sapman28@live.com**

***Avard Bentley* —** 12 Valley Rd.,Westchester, NS. B0M 2A0 Canada
**902-548-2973 • E-Mail: jbentley@ns.sympatico.ca**

***Agnes Soyka-Sperry* —** 12521 Woodin Road, Chardon, OH 44024
**440-285-4511 • E-Mail: amssojka@windstream.net**

***Bill Robinson* —** RR #2, Auburn, Ontario, Canada NOM 1EO
**519-529-7857 • E-Mail: obinmap@hurontel.on.ca**

***Wayne Clark* —** 6 Heise Run, Wellsboro, PA 16901
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***Cecile B. Pichette* —** 2100 St. Laurent, CP310, Plessiville, PQ G6L 2Y8
**450-439-2329 • E-Mail: cecile.bp@hotmail.com**

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***James Adamski* —** W10923 Winter Road, Antigo, WI 54409
**715-623-6853 • E-Mail: cdladamski@gmail.com**

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**NAMSC Executive Director • *Michael A. Girard*** • 352 Firetown Rd., Simsbury, CT 06070
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**COVER:** Sperry Sugar House operated by Gingerich Bros, Middlefield, OH

# GREETINGS FROM YOUR PRESIDENT

It is late December as I write this article for the February Edition of the Maple Digest and I am reminded of all that I learned from my late Father-in-law, Bill Rutherford, about making maple syrup. My introduction to the world of maple came quite by accident when I arrived at a house in the country for a blind date and noticed that they had a building on fire. My date assured me "that is just Dad making maple syrup." One of the smartest things I ever did was to marry that girl. For a time we lived about four miles away from the sugar camp and I was allowed to keep the fires going in the evaporator for an hour on Wednesday nights while Bill watched Gunsmoke! Eventually we moved down the road and my time in the sugar house increased. For many years I kept a sugar house journal jotting down Bill's sugaring methods. As I have since learned not all that knowledge has proved to be the best method of making maple syrup. Bill never wanted to tap his sugar bush of 1800 buckets until he heard the birds sing and he believed that in order to have sweet sugar water you needed a deep freeze during the winter. Since tubing is now used we tend to tap early enough so that we do not miss the first run. Last winter here in east-central Indiana was very mild with the ground never freezing more than a few inches, yet we had a record year and the sugar content was between 2.5% - 3.0% most of the 8 week season. So much for the deep freeze theory.

It is still a little overwhelming that a man from Indiana with no knowledge of maple syrup until he was about twenty years old is in a leadership position of the North American Maple Syrup Council with a membership of well over 5,000 people. Thankfully, I have the council of people like Mike Girard, Joe Polak, and Eric Randall to keep me on track. I am proud to be a part of the 'sweetest' organization in North America! Let's hope for a great upcoming season.

With Best Regards,
Dave Hamilton

# IMSI NEWS

*By: Dave Chapeskie, R.P.F., Executive Director, IMSI*

## INTRODUCTION

The International Maple Syrup Institute held their quarterly Board of Directors Meeting and their Annual Business Meeting at Delta Beauséjour Hotel in Moncton, New Brunswick on Wednesday, October 23rd and Thursday, October 24th, 2013, respectively. Both the IMSI Directors Meeting and Annual Meeting were very well attended by IMSI Directors, IMSI Advisors and others with an interest in IMSI business.

A detailed report outlining IMSI activities was printed in the Fall 2013 issue of the Maple Digest. Consequently, this report will be shorter and focus on some of the main IMSI areas of endeavor for 2014.

## IMSI WORK EMPHASIS FOR 2014

A primary focus of the IMSI's attention at this time is to encourage federal regulatory bodies in the United States and Canada to expedite regulatory approvals. Federal level approvals will most certainly assist progress in obtaining approval in the provinces and states which have not yet prepared and approved their new maple grade rules. Readership of the Maple Digest should especially note that the State of Vermont will be implementing the new grade rules, incorporating the IMSI proposed international grade standard, for the 2014 production season. Vermont has also produced 5000 new temporary grading kits aligned with the IMSI recommended colour classes.

Broader implementation of the new international maple grades standard is anticipated for the 2015 production season based on the current status of regulatory approvals. The IMSI will continue to monitor progress towards obtaining approvals at the federal level in Canada and the United States as well as at the state/provincial levels in the states and provinces with their own maple regulations. The chart summarizing progress towards regulatory approvals published in the Fall 2013 issue of the Maple Digest has been updated to the end of December 2013 and is included in this issue. Status updates will be provided in each issue of the Maple Digest in 2014 by IMSI. The IMSI will also continue to support related activities seen as appropriate by the IMSI Board of Directors.

Addressing issues related to maple product quality and purity will remain high on the IMSI agenda in 2014. This includes continuation of support for adulteration testing in North American and overseas markets as well as support for the very popular IMSI sponsored Maple Grading School. Some emphasis will be directed to mapping out current maple grading awareness and education programming in Canada and the US. This could lead to more uniform educational materials and approaches among jurisdictions, with considerable emphasis on the new international maple grades standard.

Another very important area of work will be to make progress on helping address the issue of misrepresentation of maple in the marketplace. Details regarding planned actions were reported in the last issue of the Maple Digest.

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**2014 IMSI BOARD OF DIRECTORS MEETINGS**

Tuesday, February 4th, 2014 - Union of Agricultural Producers Building, Montreal, Quebec

Thursday, May 8th, 2014 - Holiday Inn, Burlington, Vermont

Tuesday, August 5th, 2014 - TBD, Kingston, Ontario

**2014 ANNUAL IMSI AND NAMSC MEETINGS**

Tuesday, October 22nd to Friday, October 24th - Old Orchard Inn, Annapolis Valley, Nova Scotia

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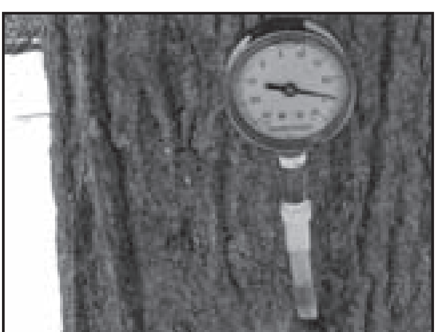
# 2013 Maple Tubing Research

*By Stephen Childs, NYS Maple Specialist*

Sap stops running at the end of the maple season for one of two reasons: First, the weather no longer provides any more freeze thaw cycles necessary for sap flow. Second, the very small vessels in the wood in the tap hole become plugged with bacteria and yeast blocking the flow of sap. Since the second reason is the only variable the producer can control we continue to look for improvements in equipment and cleaning methods. In 2013 a variety of spout and tubing cleaning and replacement options were tested to determine the extent of sap yield changes that would result. Most of these tests were done at the Cornell Arnot Research Forest.

There seem to be two important means by which tap holes become contaminated with bacteria and yeast that a maple producer can provide some reasonable method of control. First, the spout that is driven into the freshly drilled taphole must be sanitary. Sanitary meaning that it is either new or has been completely sanitized with a chemical sanitizer, heat or other sanitizing action. Second, as the tree alternates between positive internal pressure when it is above freezing and negative (vacuum) internal pressure when it first drops below freezing, sap is sucked back into the tree through the spout and out of the tubing which if it has been in use for more than a season or two is often loaded with a population of bacteria and yeast. To avoid tap hole contamination due to this pulling of sap back into the tree either the back flow must be blocked as with a check valve or the inside of the spout and dropline must be sanitary. Sanitary tubing means new or having been sanitized with chemicals, heat or other method of cleaning. Below are photos of the pressure changes in a maple tree due to temperature changes. The first shows about 26 psi positive pressure when the temperature was above 40 degrees F the morning after a freeze. The second shows about 10 inches of vacuum developed in the tree during a period of freezing during the maple season.

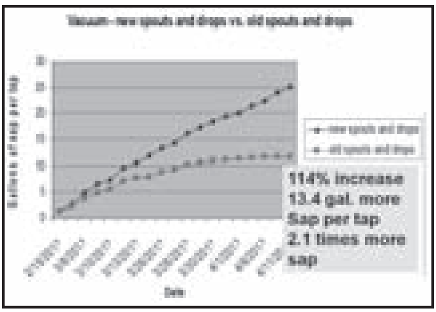


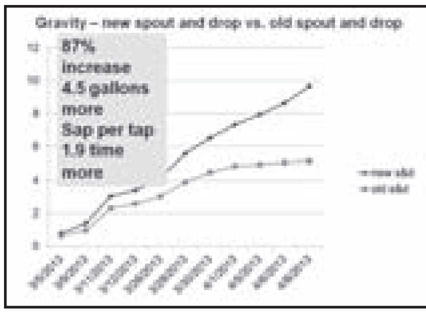
**Picture 1**

**Picture 2**

Study treatments except where noted were a direct comparison between a check and a described treatment each with three replications, each replication with 4 to 6 taps, both treatments in the same tree, spaced about 10 inches apart at the same elevation and same basic orientation. The check was usually represented by an old spout and old drop, having been used each season for at least 10 years or in a few cases by a new spout and new drop.

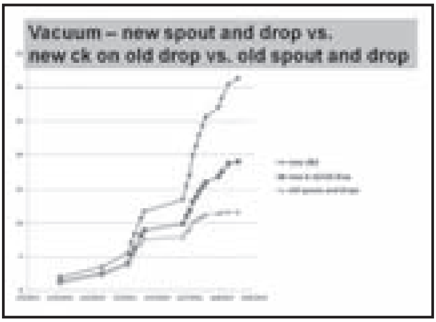
The 2013 season started early with our first measureable sap run occurring on February 15th followed by a long cool season lasting well into April. In the vacuum systems tests the vacuum level was consistently between 21" and 22" Hg. The standard test of comparing yield from a new spout and drop vs. an old spout and drop (used for at least ten years) was also used as a comparison this year. This test was conducted at between 21" and 22" of Hg and the old and new spouts were black plastic. In 2013 the new spout and drop produced about 25 gallons of sap per tap while the old spout and drop yielded about 12 gallons of sap per tap for an increase of 114% or 13.4 more gallons of sap per tap with the new spout and drop. The gravity system with the same test we didn't see measureable sap flow until March 5th. Here the new spout and drop yielded 87% or 4.5 more gallons of sap per tap than the old spout and drop.

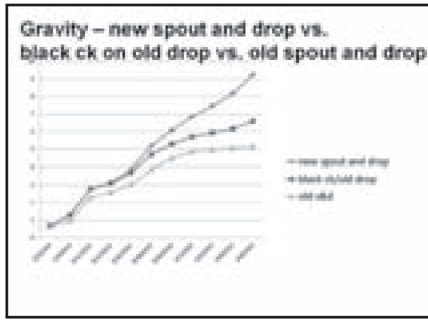



The chart below shows how these treatments have compared over the last 7 years of testing both on gravity and vacuum.


In 2013 several tests were conducted using check valve spouts. A new spout and drop was compared with a new check valve spout on an old drop (in use more than 10 continuous seasons) at the 21" to 22" Hg vacuum: new spouts were black plastic. Here the average yield of the new spout and drop was about 32 gallons of sap per tap and the check valve on the old drop yielded about 19 gallons of sap per tap for a difference of 65% or 12.4 gallons of sap per tap more with the new spout and drop. The new black check valve out-yielded the average old spout and drop in the same woods by 7 gallons of sap per tap for an increase of 63%. The results with the same treatments on gravity were simular. With the new spout and drop out performing the new check valve on an old drop by 35% and the new black check valve spout on an old drop out performing the average old spout and drop by 33%.



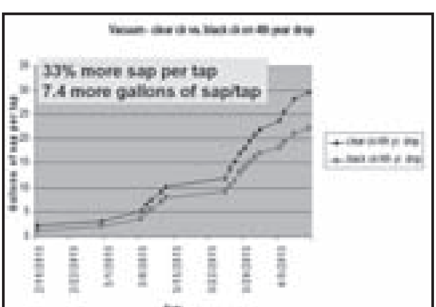



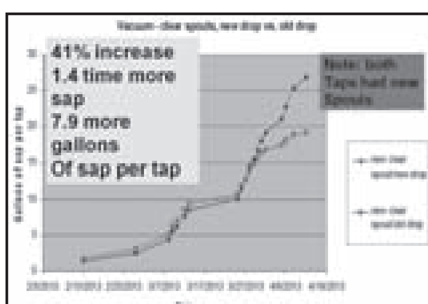

## History of Check Valve Tests

- Vacuum
- 2013 65% increase
- 2012 20%
- 2011 101%
- 2010 114%

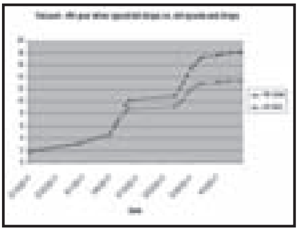
- Gravity
- 2013 33% increase
- 2012 18%
- 2011 77%
- 2010 47%
- 2009 43%

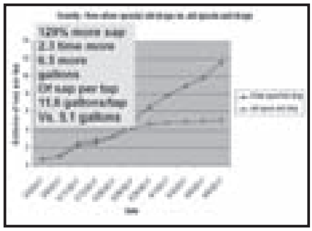
Also the new clear check valve was tested against new black check valves. In this test both new check valves were on fourth season drop lines. In this case the new clear check valve treatment outperformed the new black check valves by 33% yielding an average 7.4 more sap per tap. A new clear poly carbonate spout with new tubing was compared to a new clear poly carbonate spout on an old drop. In this test the new clear spout on a new drop out performed the new clear spout on an old drop by 41% or 7.9 more gallons of sap per tap.

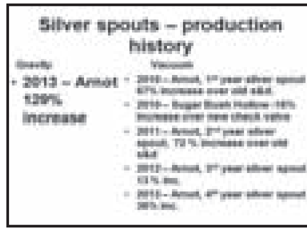


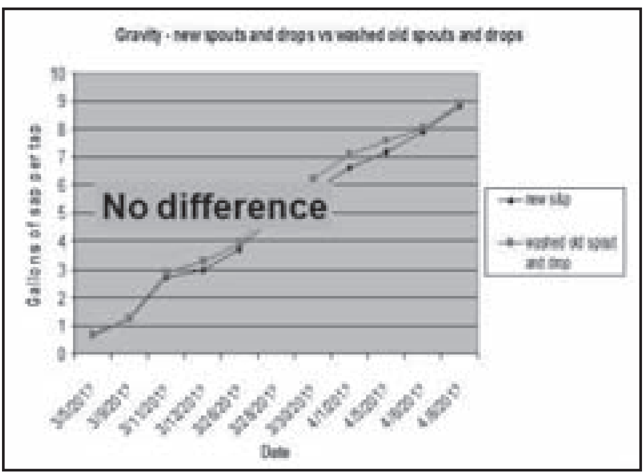
In 2013 fourth season silver spouts on old drops on vacuum were compared to old spouts and drops. The four year silver spouts still out performed old spouts and drops by 32% or 4.4 more gallons of sap per tap. In the gravity test the first year silver spouts on old drops out yielded old spouts and drops by 129% or 6.5 more gallons of sap per tap. The history of silver spout results is also posted below.





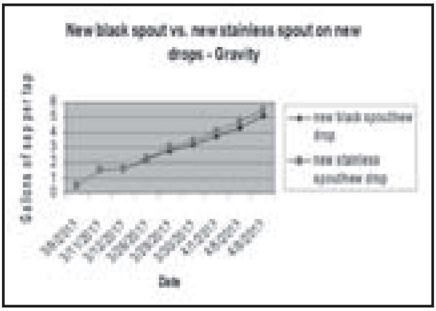



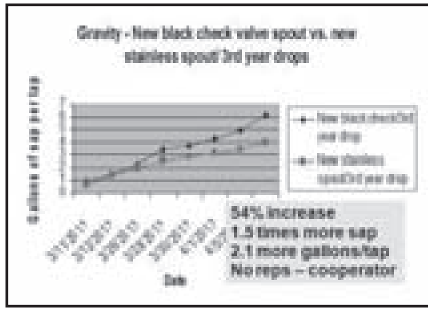

In 2013 a test was conducted to compare a new spout and drop with old tubing which had an extensive cleaning and sanitizing. Old spouts and drops had been in continuous use for 15+ years and they were washed first with detergent and water, rinsed, followed by 10 minutes of 10% chlorine treatment, rinsed and followed by a 20 minute, hydrogen peroxide treatment and finally rinsed and drained. Results showed washed old tubing preformed as well as the new spout and tubing with washed yielding 8.9 gallons of sap per tap, the new yielding 8.8 gallons sap per tap.




A couple of additional tests were conducted to evaluate stainless steel spouts. First new stainless spouts on new drops were compared with new black spouts on new drops. The result was no production difference. In another gravity test new black check valves were compared to new stainless steel spouts both on third year drops. In this case the new black check valves on third year drops out performed new stainless spouts on third year spouts by 54% or 2.1 more gallons of sap per tap. This test was conducted on a cooperator site and was not replicated.

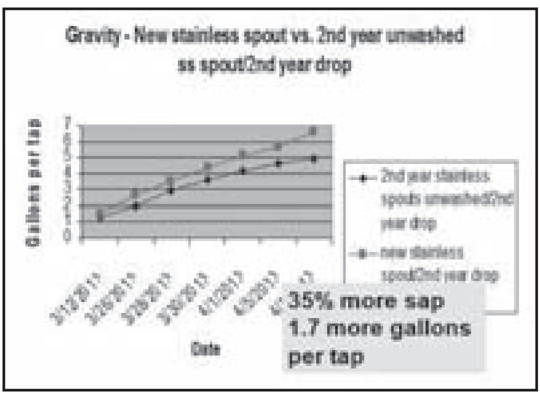
Finally new stainless spouts on second year drops were compared to second year stainless spouts that had only been rinsed with water and not sanitized on second year drops. New spouts out performed unsanitized stainless spouts by




35% or 1.7 more gallons of sap per tap. This shows the value of a clean sanitary spout vs. a water rinsed used stainless spout.

In conclusion, these kinds of tests continue to show clearly that a variety of tap hole sanitation practices significantly increase sap production per tap. Each sanitation practice creates its own level of added investment and labor. Each producer must decide which practice if any fits that operation's production goals, available labor and available capital to add this value to their operation. Plans are to have more tests conducted in the 2014 maple season. Industry support for this kind of work is also welcome.



# A MODEL OF THE TAPPING ZONE

*By: Abby K. van den Berg & Timothy D. Perkins*

University of Vermont Proctor Maple Research Center
P.O. Box 233, Underhill Center, VT 05490
***http://www.uvm.edu/~pmrc***

This article is intended to accompany the Tapping Zone Model available to download at the University of Vermont Proctor Maple Research Center (UVM-PMRC) website. It provides a general explanation of the model and how it can be used.

## MODEL OVERVIEW AND BACKGROUND INFORMATION

The tapping zone of a maple tree is defined as the area around the circumference of the stem that can be utilized for sap collection. For sap collection with tubing, it can be thought of as a radial band of wood based at the point on a tree where the dropline meets the lateral tubing of the sap collection system. The physical boundaries of the tapping zone are defined by the depth of the taphole, the length of the sap dropline, and the circumference of the tree (Figure 1).

Each year, tapping for sap collection not only permanently removes a small amount of wood from the taphole itself, but, in addition, the tree's response to the taphole wound[1] generates a "stained" column of wood extending above and below the taphole that remains permanently nonconductive to sap (Figure 2). However, stem growth also adds new conductive wood to the outside of the tree each year. This outward growth functionally shifts the tapping zone outward over time so that some of the nonconductive wood generated by previous tapping is embedded deeper into the tree and is thus no longer within the tapping zone boundaries. Thus, the volume of the tapping zone of a particular tree, and the relative amounts of conductive and nonconductive wood within it over time, are dependent on the tree's size and growth rate, as well as tapping practices - tapping depth, spout size, dropline length, and the number of taps.[2] And, these volumes can be calculated for any given time using these input parameters (Figure 3). Based on these premises, we developed a model that calculates the proportions of conductive and nonconductive wood in the tapping zone of a tree over time given user-input values for tree diameter and tapping practices. (The model is described in greater detail on the following page.)

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[1]The response of trees to wounding is termed "compartmentalization", and is aimed primarily at reducing the ability of disease causing organisms to spread throughout the tree.

[2]It is worth noting that neither vacuum, nor the date of tapping or date of spout removal (assuming spouts are removed at some point in the late-spring or early-summer) affect the volume of nonconductive wood.

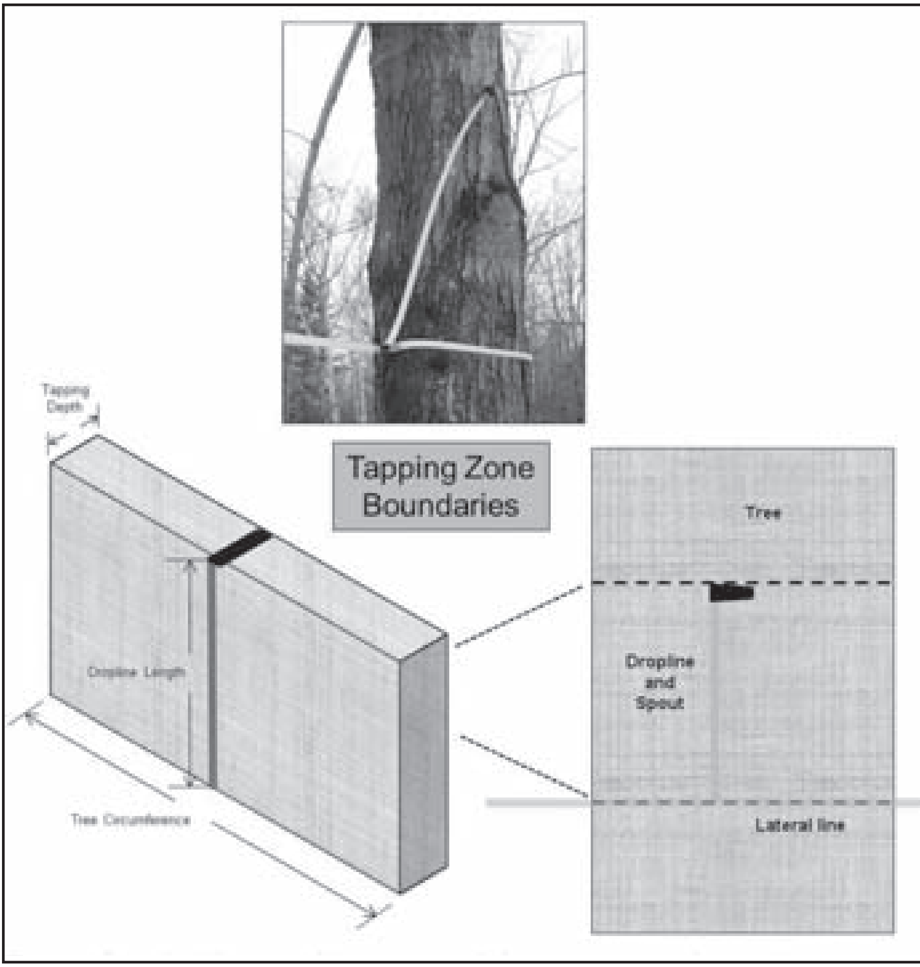


**Figure 1.** Generalized illustration of the "tapping zone" of a maple tree tapped for sap collection, the portion of each tree accessible for annual tapping to collect sap. The dimensions of the tapping zone are defined by the circumference of the tree, the length of the dropline, and the depth to which the spout is inserted.

Nonconductive wood ("NCW") is generally brownish in color, and can be observed in cross-sections (cookies) or lateral sections (boards) of cut trees (Figure 2), and detected as relatively dry, brown wood chips when a damaged area is inadvertently drilled into during tapping (Figure 4). Tapholes drilled into NCW will produce little or no sap, and an excessive buildup of NCW can affect the physiological functioning of water transport and negatively impact tree health. The total proportion of the tree's tapping zone that is comprised of this NCW will determine how frequently it is hit during tapping - if 20% of the wood in the tapping zone is nonconductive, there is a 20% chance of hitting NCW when tapping that tree. Thus, the aim is to maintain the proportion of NCW at

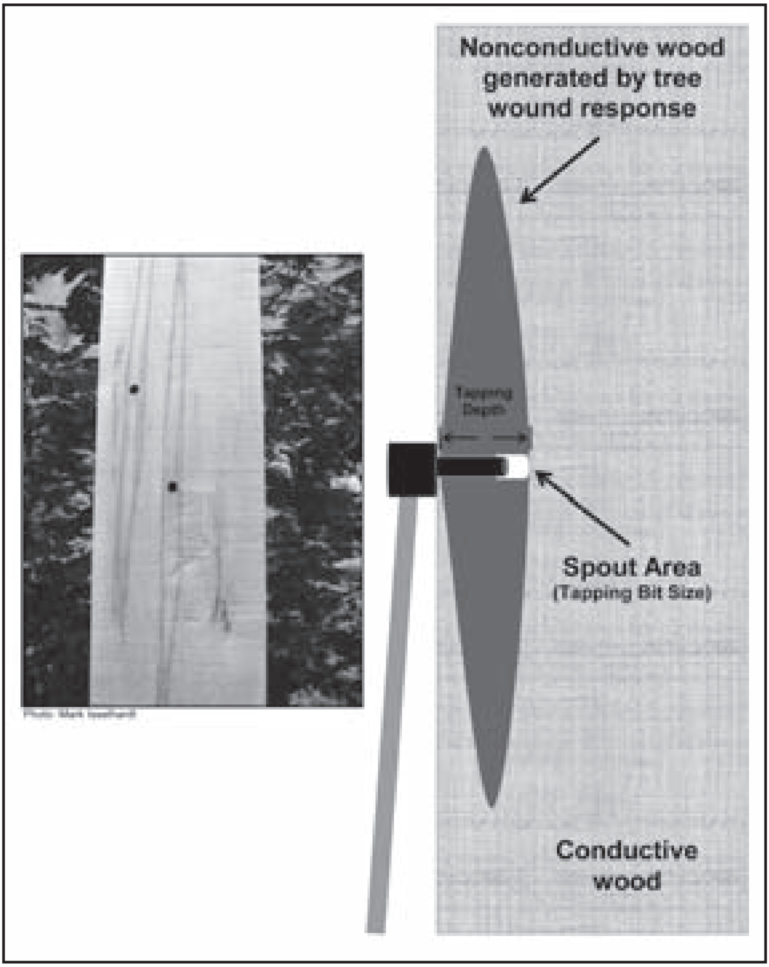


**Figure 2.** Photo (left) and generalized illustration of the volume of nonconductive wood generated by each taphole (right). The volume of wood removed by each taphole is defined by the depth and area of the hole drilled for tapping (the area is determined by the size of the drill bit and the spout used). As part of the wounding response of the tree, tapping also generates a column of nonconductive wood surrounding the hole such that the total volume of wood rendered nonconductive by each taphole is between 50 and 150 times greater than the amount removed by the taphole.

levels as low as possible (and, conversely, the proportion of conductive wood as high as possible). The relative frequency at which brown wood is encountered during tapping also provides an indication of the level of tapping intensity - hitting NCW frequently generally indicates that tapping intensity is too heavy, and that practices should be modified to reduce NCW generation and to allow more conductive wood to develop. The model estimates the proportions of conductive and nonconductive wood in the tapping zone; thus, the

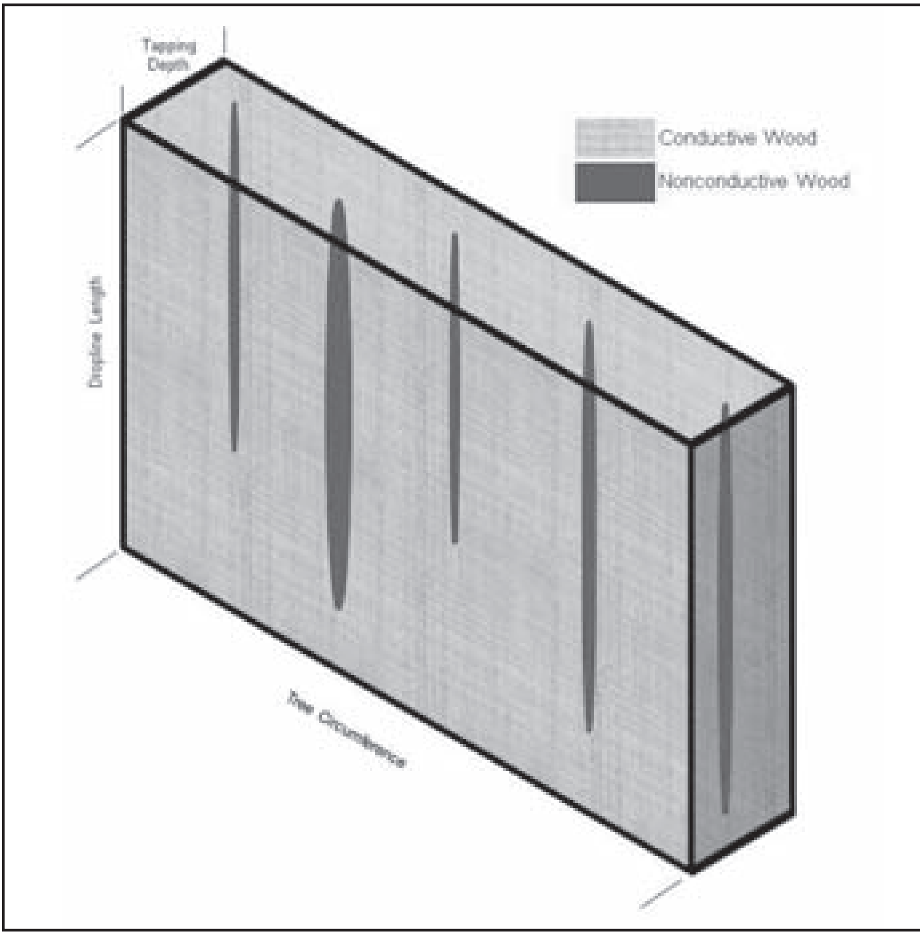


**Figure 3.** Illustration of the conductive (tan) and nonconductive wood (red) within the tapping zone of a tree. At any point in time, the total amount of nonconductive wood within the tapping zone is the total volume of nonconductive wood within the zone's boundaries from all previous tapholes. The remainder of wood in the zone is the portion of conductive wood available for tapping. The proportion of the tapping zone comprised of conductive wood is equivalent to the probability of tapping into conductive wood annually.

model can be used to estimate the chances of hitting conductive and nonconductive wood when tapping, and this can be used to assess the sustainability of current or planned tapping practices.

## MODEL DETAILS

The model calculates the proportions of conductive and nonconductive wood in the tapping zone of an individual tree each year for 100 years. Values for the following initial parameters must be entered: starting tree diameter, tap-

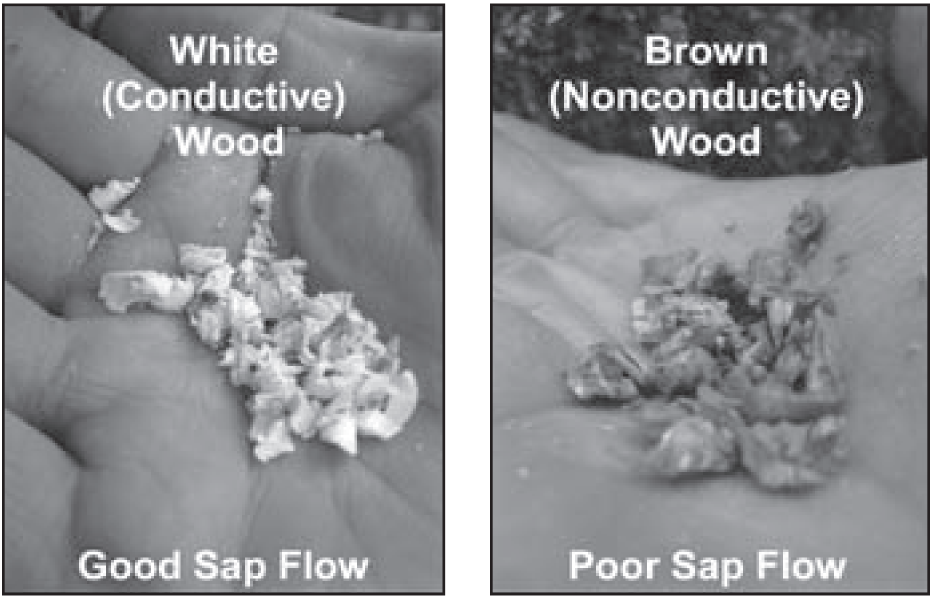


**Figure 4.** Wood chips from tapholes drilled into conductive wood (left) and nonconductive wood likely from an old taphole (right).

ping depth, spout size, number of taps per stem, and dropline length. If applicable, the number of years the tree has already been tapped with the given practices can be entered (up to 100 years).[3]

For each year, the model first calculates the total volume of wood in the tapping zone. For smaller trees, this value is equal to the tree's circumference multiplied by the length of the dropline and the tapping depth (Tree Circumference × Dropline Length × Taphole Depth) (Figure 1). For larger trees, where the dropline cannot reach fully around the tree, the boundaries of the tapping zone are constrained to a smaller area of the tree's trunk. In these cases the tapping zone is limited to the half-circle made by the dropline, and its volume is calculated as: (pi × Dropline Length$^2$)/2 × Tapping Depth.[4]

The model also calculates the volume of nonconductive wood generated by each annual taphole. This volume is equal to the volume of the taphole itself (which is equal to the area of the hole drilled for the spout multiplied by the tapping depth) plus the volume of the column of nonconductive wood that forms as a result of the taphole. The volume of the taphole is multiplied by a "Staining Multiplier" to account for the size of the column. Previous studies

[3]The model does not currently allow changes in tapping practices to be made during the 100-year period.

[4]This is also why the graph of the model output sometimes shows a discontinuous line over time - the break indicates the point when the tree reaches a size at which the dropline is no longer able to reach around the tree, and the tapping zone is limited to the arc made by the dropline.

conducted at UVM-PMRC indicate the size of this column can range from 50 to 150 times the size of the taphole (and can actually extend beyond the area of visible discoloration). The model uses 75 as a conservative estimate. The formula used to calculate the total volume of nonconductive wood generated by each taphole is thus: Spout Area × Tapping Depth × "Staining Multiplier".

The volume of the tapping zone depends in part on the circumference of the tree, which will increase each year due to new radial (diameter) growth. The model uses average growth rates to calculate the volume of new wood added to the tree each year, and the tree's new circumference.[5] These growth rates are also used to calculate the amount of NCW from each old taphole that is "removed" from the tapping zone as the new diameter growth shifts the zone outward.

The default values of the model parameters are set to match those of the Conservative Tapping Guidelines from the 2006 North American Maple Syrup Producers Manual (Chapeskie et al. 2006). These guidelines specify a minimum tree diameter of 12", a tapping depth between 1-2", a minimum dropline length of 30", and a maximum spout size of 5/16" (19/64").

## MODEL OUTPUTS

### *Probability of Tapping Conductive Wood*

The model calculates the total volume of NCW in the tapping zone each year by summing the individual volumes of NCW from all tapholes present at that time (Figure 3). Likewise, the total volume of conductive, clear wood is calculated by subtracting the amount of NCW from the total volume of the tapping zone. Finally, for each year, the model calculates the proportion of the tapping zone that is comprised of conductive wood by dividing the total volume of conductive wood by the total volume of the tapping zone. The result represents the probability of tapping clear, conductive wood in that tree each year. The model performs this calculation for every year over a 100-year period (as the tree grows), and assumes tapping practices remain the same during that period. The graph illustrates how this value changes over time.

### *Lowest Proportion of Conductive Wood*

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[5]The average growth rates the model uses for these calculations are derived from data collected from approximately 500 healthy sugar maple trees with dominant or codominant canopy position, ranging from 8 to 20" in diameter. They had been tapped for at least 5 years with current sap collection practices and a single tap, and were from 18 stands in VT with good site quality for maple growth. The average 5-year (2006-2009) growth rates were determined for six DBH classes (8-10, 10-12, 12-14, 14-16, 16-18, and 18-20"), and were used to generate a best-fit regression equation to estimate the relationship between tree dbh and growth rate (y= -0.0024x2 + 0.6435x - 4.2231, r2=0.99). Because tree growth rate varies with tree size, the model uses this equation to adjust the growth rate of the tree over time as it increases in size. Growth rates and compartmentalization of other maple species and for sugar maple trees growing in conditions different than those of the trees studied here can vary considerably.

The model also calculates the lowest proportion of conductive wood likely to be present in that tree tapped with those practices over the 100-year period. As discussed previously, this proportion should remain as high as possible in order to support both tree health and sap yields. Based on consultation with producers and maple researchers, we recommend this level remain at or above 90%. This would be equivalent to a likelihood of hitting conductive wood in 9 out of every 10 trees when tapping (assuming all trees were the same size and tapped with same practices input into the model). Depending on your preferences, you might choose to aim for practices that result in an even higher level, e.g. >95%.

**USING THE MODEL**

The model estimates the proportion of conductive wood in the tapping zone of a tree with the specified size and tapping practices for each year while the tree grows, the volume of the tapping zone increases, new wood is added to the tapping zone, brown wood from old tapholes grows out of the tapping zone, and new NCW is generated by annual tapping.

You can use the model to examine the effects of tree size and of altering tapping practices on the amount of conductive wood in the tapping zone over time, and thus to evaluate the potential sustainability of various tapping practices. In general, for model scenarios in which the "Probability of Tapping Conductive Wood" remains above 90%, the practice can be considered "sustainable". If the probability drops below 90%, especially if it stabilizes below that level for a considerable time, then sustainability may be compromised.[6]

The model also provides some insight into practices that have particularly strong impacts on the buildup of NCW in the tapping zone. For example, the model can be used to illustrate how the length of droplines influences the accumulation of NCW. This is because the dropline is a factor that determines the total size of the tapping zone - the longer the dropline, the greater the tapping zone volume, and the smaller the resulting proportion of the zone taken up by each old taphole. Figure 5A shows the model output for a 12" tree tapped following current Conservative Tapping Guidelines - using a 30" dropline and 5/16" spouts at a depth of 1.5" (Chapeskie et al. 2006). Reducing the length of the dropline to just 20" results in the proportion of conductive wood dropping below 90% after just 15 years of tapping (Figure 5B). Similarly, the model demonstrates that using 7/16" spouts or tapping small trees, even while following all other conservative tapping practices, can also quickly result in an accumulation of NCW above sustainable levels after just a few years (Figures 6 and 7).

---

[6]Probabilities remaining below 90% for sustained periods are particularly problematic due to the fact that merging NCW columns typically result in higher NCW volumes than isolated columns alone. That is to say that the nonfunctional volume of merged columns is greater than the sum of its individual parts. The model does not account for this fact.

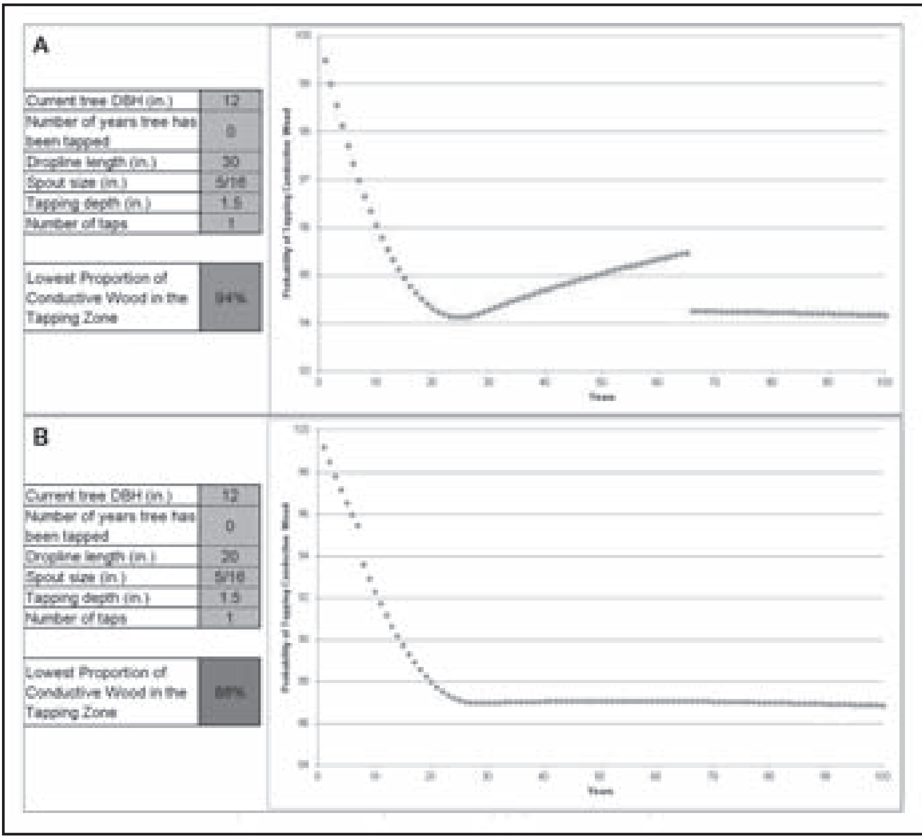


**Figure 5. A)** Example output from the tapping zone model showing the probability of tapping conductive wood and the lowest proportion of conductive wood in the tapping zone over 100 years for a 12" diameter tree tapped following current Conservative Tapping Guidelines (5/16" spouts, 1.5" tapping depth, 30" droplines). **B)** Example output for the same tree using shorter, 20", droplines.

The model was developed as part of a larger effort underway at UVM-PMRC to evaluate and revise existing tapping guidelines to incorporate the results of recent research, and particularly to ensure they are appropriate for current sap collection practices that facilitate much higher sap yields than those achievable using past collection methods. The new guidelines will aim to incorporate the results from research on the effects of tapping practices on both sap yields and tree health, as well as to reflect a balance between costs and benefits of various practices. The new guidelines will be included in the upcoming 3rd Edition of the North American Maple Syrup Producers Manual, which is expected to be published in 2016.

**If you have any questions about the model or interpreting its output, please contact Dr. Abby van den Berg (Abby.vandenBerg@uvm.edu)**

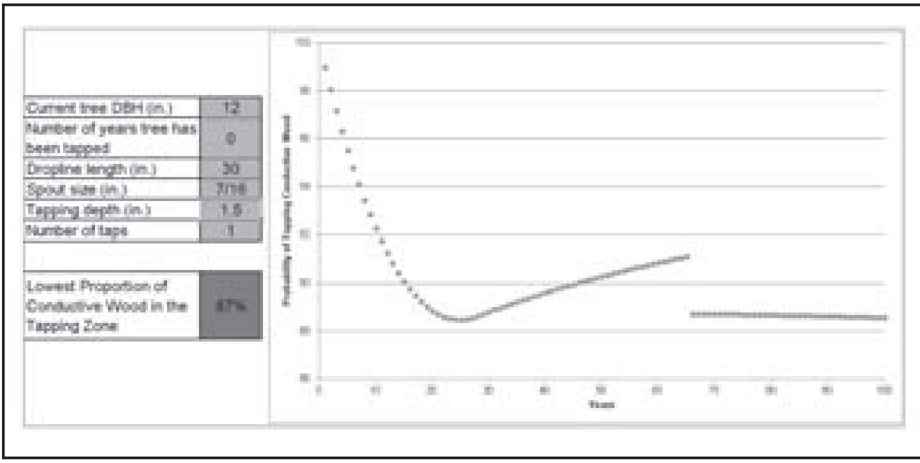


**Figure 6.** Example output from the tapping zone model for a 12" diameter tree tapped following current Conservative Tapping Guidelines (1.5" tapping depth, 30" droplines), but using 7/16" spouts. Note that the proportion of conductive wood falls below the 90% threshold in less than 20 years.

**SOME IMPORTANT NOTES:**

This model is a work-in-progress, and will be updated over time as refinements are made. Check the UVM-PMRC website frequently for updated versions and information.

This model provides only estimated values. It should be used only as a general tool to help evaluate current or potential practices. It is not a substitute for a thorough evaluation of tree health or growth rates.

The model makes several assumptions and has some limitations that should be noted. It does not account for decreases in growth rates that might occur as the result of tree ageing, changes in site conditions or management practices, or events such as drought or disease. It also assumes that all other best practices are being followed (Chapeskie et al. 2006). The model calculations are based on the growth rates of healthy trees with dominant or codominant canopy position growing on good quality sites that were between only 8 and 20 inches in diameter and had been tapped with only a single tap. The model estimations are thus less reliable for trees tapped with 2 taps or trees that are larger or smaller than 8-20" dbh. The model should not be used to estimate values for trees that are growing on sites with poor or below average site quality, have suppressed or intermediate canopy position, or those that are stressed or unhealthy or have below average or poor growth rates.

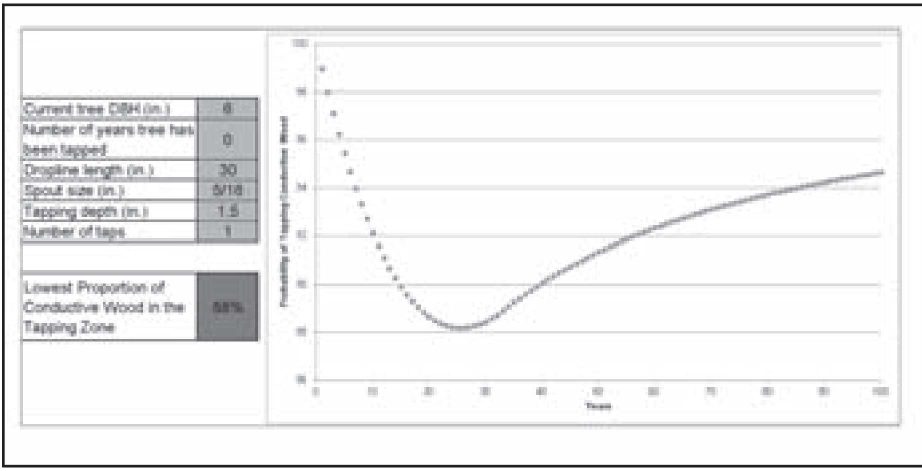


**Figure 7.** Example output from the tapping zone model for a 6" diameter tree tapped following current Conservative Tapping Guidelines (5/16" spouts, 1.5" tapping depth, 30" droplines). Note that the proportion of conductive wood falls below the 90% threshold in less than 20 years.

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## ACKNOWLEDGEMENTS

This project was supported by the Northeastern States Research Cooperative through funding made available by the USDA Forest Service. The conclusions and opinions in this paper are those of the authors and not of the NSRC, the Forest Service, or the USDA. *http://www.nsrcforest.org*

## NOT MUCH HAS CHANGED!

***(A re-print of a letter from Feb. 1978 concerning NEW MAPLE GRADES)***

Ever since hearing USDA'S proposed new maple grades that appeared in the Federal Register last spring, Vermont Maple Producers have been somewhat disturbed.

Certain packer interest within Vermont have been even more disturbed. These particular packer interests have gone to some length to convince Vermont producers that the proposed new Federal grading could be detrimental to out of state sales by Vermont producers. The truch would seem to be that under the new Federal proposal Vermont producters could suffer some marginal sales loss in wholesaling Vermont grade "B" outside of Vermont. At the same time it could be a considerable boon for sales of Vermont grade fancy out of state. Thus, it would appear the Vermont producer had more to gain that to loose in the new USDA broad base grade A catagories. CERTAIN Vermont packers see it differently. The use of the proposed new grades in other maple states could force them to pay higher bulk prices for so called grade B which they currently buy outside Vermont. This situation might even force them to buy more of higher priced bulk "B" from Vermont producers.

So, I say "beware" fellow Vermont maple producers of the "packer wolfs" who appeal to you as a lamb. Be not led too far into the wood by a lot of packer mombo - jomba sweet talk. What might benefit certain Vermont packers will not necessarily benefit you the producer.

Bill Clark, Maple Producer, Pawlet, VT

(I thought it interesting that worry over grade changes goes back a long ways - Editor)

# IMPROVING PROFITS FOR MAPLE PRODUCERS THROUGH TUBING SANITATION LNE13-326

Microbes on spouts or in the maple tubing system hasten taphole drying, resulting in reduced sap yields for maple producers who use ineffective spout and tubing replacement or cleaning strategies. The University of Vermont Proctor Maple Research Center and the Cornell University Maple Program are conducting a joint, multi-year USDA Northeast SARE funded research and education project investigating the effects of spout and tubing sanitation strategies (replacement and/or cleaning) on sap yield and profits. One component of the project is to seek maple producer input and information to assist in both the development of the research as well as to tailor the outputs to meet the needs of the industry. To accomplish this, we need your help. This survey is intended to provide information about this project, to gather some basic information from maple producers, and assess maple producer interest in this project. No personal information (name, address, contact info) is collected in this survey. You should only complete this survey if you are a current maple producer.

Please complete the survey by browsing to: **http://alturl.com/5birp**

## Status of Progress in Incorporating the IMSI Standard Grades Proposal into Federal and State/Provincial Maple Grades Regulations in the United States and Canada

### Status Report #2 – December 31st, 2013

| JURISDICTION | | STATUS – IMSI STANDARD GRADES PROPOSAL |
|---|---|---|
| CANADA | | The Canadian Food Inspection Agency(CFIA) commenced work on the standard grades file following the unanimous passage of a motion in the Canadian Senate, recommending the adoption of the IMSI Standard Grades Proposal. Following a round of public consultation, the CFIA has prepared the draft regulations which are currently undergoing internal review .They are expected to be published for comment in February 2014 (Gazette 1), followed by a final publication (Gazette 2) and adoption of the new rules expected sometime in 2014.. The IMSI is closely monitoring progress by CFIA. |
| PROVINCES | Ontario | OMAF and MRA staff continue to monitor the amended Canadian Federal Regulation and await Gazette 1 publication of the amendments. When the CFIA publishes the regulatory amendments, staff will review the amended federal regulations. |
| PROVINCES | Quebec | MAPAQ officials are currently discussing the IMSI proposal and are awaiting the decision of the Canadian Federal government. IMSI member representatives have initiated contact with MAPAQ officials and will continue to monitor activities. |
| UNITED STATES | | The IMSI has reviewed several drafts of USDA Regulations incorporating the maple Grades changes proposed by the IMSI. The final draft regulations as approved by the USDA will be published in the Federal Registry for comment in 2014 as soon as all required departmental approvals are obtained. Approval of the new USDA Regulations is expected in advance of the 2015 maple production season. |
| | Vermont | A joint resolution supporting the grade changes was passed by both the Senate and House in 2013. This was requested by the Governor and Secretary of Agriculture to show legislative support for the changes. The Vermont Agency of Agriculture is preparing for implementation of the new grading rules that go into effect on January 1, 2014. There is a one year grandfather period to use existing grade labeling, and a 3 year period for sales of Vermont syrup within the State of Vermont to use both the old and the new grading systems. |

| STATES | |
|---|---|
| **Maine** | A new Bill passed in the Maine Legislature replaces the existing maple syrup grading system for the State with the new grading system that has been proposed by the International Maple Syrup Institute. It proposes a uniform grade of maple syrup: Grade A for maple syrup sold at retail. The bill takes effect only upon adoption of the new grading system by the United States Department of Agriculture and the Canadian federal government and notice of the actions being provided by the Commissioner of Agriculture, Conservation and Forestry to the Secretary of State, the Secretary of the Senate, the Clerk of the House of Representatives and the Revisor of Statutes. |
| **New York** | New York State government officials have developed Maple Grades Regulations, incorporating the IMSI's Maple Grades proposal. Public hearings on the IMSI Grades proposal were held in 2013 with strong support being the outcome from this exposure. In August 2013, the IMSI Executive Director was informed that the maple syrup grade changes proposed by the IMSI will be required in law in New York State on January 1st, 2015. |
| **Ohio** | Ohio has been awaiting preparation of the draft Amended USDA Maple Grades Regulations. The IMSI has shared the USDA draft amended Maple Grades Regulations which were received on July 23rd, 2013 with maple regulatory officials in Ohio. |
| **New Hampshire** | Legislative approval may not be required as part of the approvals process in New Hampshire. It is expected that development of the new maple grade rules will commence soon or may have already begun.The USDA Draft Regulations have been shared with New Hampshire as a reference. |

# 2014 SAP PRICES

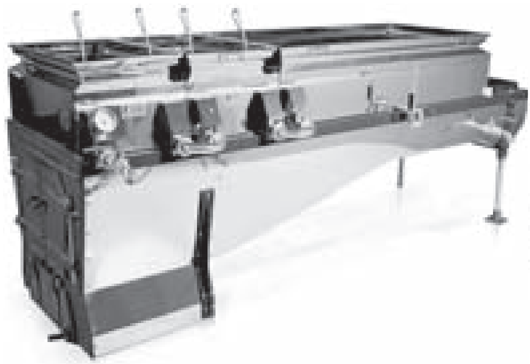
A lot of people have requested that we publish sap prices. What I have found is that sap prices vary greatly depending upon the retail price of syrup.

The retail price of syrup in the Northeast is higher than in the Midwest, hence the price paid for sap is higher in the Northeast. Listed below are sap prices being paid by SOME producers.

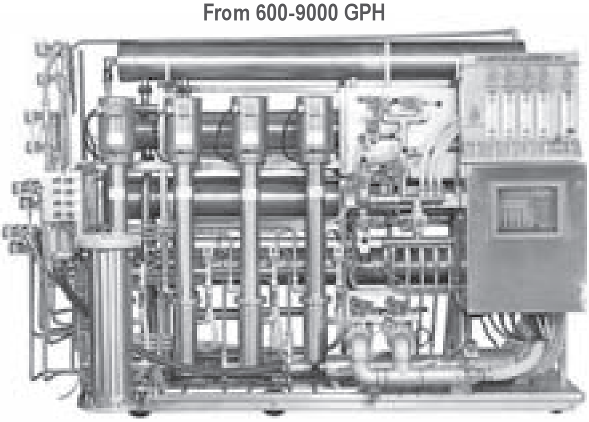
Remember these prices are for sap delivered to the sugarhouse.

These prices are intended to be used only as a guide for buying sap and no way intends that they dictate the price for the entire industry.

| sugar | $/gal. | sugar | $/gal. |
|---|---|---|---|
| 0.8 | 0.10 | 2.50 | 0.40 |
| 0.9 | 0.12 | 2.60 | 0.43 |
| 1.00 | 0.14 | 2.70 | 0.45 |
| 1.10 | 0.16 | 2.80 | 0.47 |
| 1.20 | 0.18 | 2.90 | 0.48 |
| 1.30 | 0.20 | 3.00 | 0.50 |
| 1.40 | 0.22 | 3.10 | 0.52 |
| 1.50 | 0.24 | 3.20 | 0.53 |
| 1.60 | 0.26 | 3.30 | 0.55 |
| 1.70 | 0.28 | 3.40 | 0.57 |
| 1.80 | 0.30 | 3.50 | 0.58 |
| 1.90 | 0.32 | 3.60 | 0.60 |
| 2.00 | 0.33 | 3.70 | 0.62 |
| 2.10 | 0.35 | 3.80 | 0.63 |
| 2.20 | 0.37 | 3.90 | 0.65 |
| 2.30 | 0.38 | 4.00 | 0.66 |
| 2.40 | 0.40 | | |









# Contributions to the NORTH AMERICAN MAPLE SYRUP COUNCIL RESEARCH FUND Contributions from 9/1/12 to 8/31/13

The North American Maple Syrup Council would like to extend their thanks to those who have contributed to the NAMSC - Research Fund either individually or through the "PENNY PER CONTAINER" program from September 1, 2012 to August 31, 2013.

Contributions can be made through your container manufacturer or supplier or sent directly to the North American Maple Syrup - Research Fund in care of Joe Polak, Treasurer, W1887 Robinson Dr., Merrill, WI 54452, Phone: 713-536-7251, Email:maplehollowsyrup@verizon.net. Please make checks payable to: NAMSC - RESEARCH FUND.

## SPECIAL THANKS TO OUR ALLIANCE PARTNERS

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Alden Dana, Hartland, VT
Andersen Maple Farm, Long Eddy, NY
Atkins Fruit Bowl, Amherst, MA
Baker's Acres, Plymouth, NY
Baldwin Hill Farms, Rushford, NY
Balsam Ridge, Raymond, ME
Bascom's Sugar House, Alstead, NH
Bean Hill Farm, Northfield, NH
Beckwith Maples, Rome, PA
Benz's Sugar Shanty & Maple Products, East Concord, NY
Berkshire School, Sheffield, MA
Big Tree Maple, Lakewood, NY
Black Creek Farms, Croghan, NY
Blue Heron Farm, Charlemont, MA
Blue Vue Enterprise, Weld, ME
Bob and Pat Dubos, Chaplin, CT
Borgeson Universal, Torrington, CT
Bradway Sugarhouse, Stafford Spring, CT
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Branon's West View Maple, Fairfield, VT
Breakneck Ridge Farm, Blanchard Twp, ME
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Catskill Mountain Maple, Delancey, NY
Catskill Mountain Sugar House, Monticello, NY
Cavender Sugarhouse, Hebron, CT
Cedarvale Maple Syrup Company, Syracuse, NY
Charles Drake, Windsor, CT
Charles Wagner, Crivitz, WI
Charlie's Sugarhouse, Greene, RI
Chris Genson, Kingston, NY
Chris Graves, Kensington, CT
Clark's Farm, Wells, VT
CNY Maple Festival, Inc., Marathon, NY
Cochran Cousins LLC, Richmond , VT
Cook Street Sugarhouse, S. Windsor, CT
Cornell University, Ithaca, NY
Countryside Hardware, De Ruyter, NY
Couture's Maple Shop/B&B, Westfield, VT
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Endless MT Cabin, Rome, PA
Eric Schaen, Windham, CT
Erlsten Bros. Maple Products,
Mt. Gilead, OH
Fabyan Sugarshack, N.Grosvenordale, CT
Ferguson's Maple Farm, Bridgeport, WV
Fideldy's, Cohasset, MN
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Fitch Pharm Farm, Ashland, OH
Flaherty's Maple Products, Sigel, PA
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Friends of Sullivan Farm, New Milford, CT
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Frost Valley YMCA, Claryville, NY
Frosty Maple Products, Southampton, NS
Funk Grove Maple, Shirley, IL
Gadapee Family Sugarhouse,
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Geauga Park Distric, Chardon, OH
Gillespie, Waterville, VT
Girard's Sugar House - Heath,
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GoodRich's Sugar House, Cabot, VT
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Green MT Sugar House, Ludlow, VT
Green Mtn Maple Sugar Refining Co.
Waterville, VT
Green's Sugarhouse, Poultney, VT
Haigh's Maple Syrup & Supplies,
Bellevue, MI
Hall Farms Maple Products,
East Dixfield, ME
Hamley's Maple Farm, Barton, NY
Hardwick Sugar Shack, Hardwick, MA
Hedmark's Maple Ridge, Florence, WI
Heirloom Orchards, RichardsLanding, ONT
Hess Farm Supply, Andover, NY
Hidden Springs Maple, LLC,
San Francisco, CA
High Meadow Farm, East Burke, VT
Highland Lake Sugar Shack,
Lunenburg, MA
Highland Sugarworks, Inc., Websterville, VT
Hilljack Sugar Shack, Litchfield, CT
Hollis Hills Farms, Lunenburg, MA
Howrigan Family Farm, Fairfield, VT
Hummingbird Ranch, Staatsburg, NY
Hurlbut's Maple Products, Canton, NY
Indiana Maple Syrup Assoc., New Castle, IN
Indian Creek Sugar Camp, Dayton, OH
Ioka Valley Farm, Hancock, MA
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James Woodrow , Hermon, NY
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K-Mac Builders, Inc., Holderness, NH
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Keim's Maple Supply, Homerville, OH
Kickapoo Gold, LLC, Westby, WI
Kinney Maple Supplies, Knox, ME
Kleeberg's Sugar House, Greenfield, MA
Lake Country Tree Farm, Rainbow Lake, NY
Lansing Burdick, Stephentown, NY
Leader Evaporator Co. Inc., Swanton, VT
Leonard's Sugar House, N. Canton, CT
Little Stream Sugarworks
West Lebanon, NH
Loch's Maple Syrup, Springville, PA
Longview Forest Products, Hancock, NH
Lookaway Farm, Springfield, VT
Lyndy Restaurant Group, LLC, Rutland, VT
Mad River Maple Syrup Co., Middlesex, VT
Malcolm MacKenzie, Naples, NY
Mance's Tree Farm, Shaftsbury, VT
Maple Acres, Central Lake, MI
Maple Glen Sugar House, Gowanda, NY
Maple Hill Farms, Cobleskill, NY
Maple Knoll Farm, Winsted, CT
Maple Mist Farm, Fredrickstown, OH
Maple Stone Farm, E. Corinth, VT
Maple Land Farms, Salem, NY
Martin Collins, Putney, VT
Mass Maple Producers, Plainfield, MA
Mayotte Maple Products, East Fairfield, VT
Mead's Maple Syrup, Canaan, CT
Merck Forest & Farmland Center, Rupert, VT
Merle Maple Farm, Attica, NY
Milroy Farms, Salisbury, PA
Minnestalgia Foods, LLC, McGregor, MN
Moonlight Maple Co., Mt.Vernon, ME
Morse Farm Maple Sugarworks,
Montpelier, VT
Mount Mansfield Maple Products,
Colchester, VT
Mount Pleasant Sugarworks, Leicester, VT

Mountain Cider Co., LLC, N. Chittenden, VT
Mt. Cube Farm, LLC, Orford, NH
Mud Road Sugar House, Northville, NY
Muscle in Your Arm Farm, Etna, NH
Native Harvest, Callaway, MN
Nelson Farms, Cazenovia, NY
New Milford Youth Agency, New Milford, CT
Newhall Farm, LTD, Reading, VT
Niese's Pure Maple Syrup,
  Putnam Valley, NY
Nightingales Maple Farm, Amsterdam, NY
Nokomis Inc., Trois-Pistoles, QC
Norman's Sugar House, Woodstock, CT
Norris Sugarworks, Starksboro, VT
North Hadley Sugar Shack, Hadley, MA
Northeast Maple Products, Derby Line, VT
Northern Wisconsin Maid, Park Falls, WI
Northfield MT Herman, Mt. Herman, MA
Northwest Penn Maple, Meadville, PA
Oak Lodge, Stahlstown, PA
On the Lane Farm, N.Scituate, RI
Orchard Hill Farm, So. Woodstock, VT
Orwell Can Group, Orwell, VT
Oswegatchie Educational Center,
  Croghan, NY
Out on a Limb Farm, LLC, Wyoming, NY
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Raspberry Patch Farm, Deerfield, MA
Rathbun's Maple Sugarhouse, Whitehall, NY
Red Bucket Sugar Shack, Worthington, MA
Red Leaf Hollow Farms, Richford, VT
Remsburger Maple Farm & Apiary,
  Pleasant Valley, NY
Richards Maple Products, Chardon, OH
Rivermede Farm Market, Keene Valley, NY
Riverside Baptist Church, Terryville, CT
Rocky Ridge Maple, Middlebury Ctr., PA
Roger Lawson, East Hampton, CT
Roger Sage, Warsaw , NY
Roxbury Mountain Maple, Hobart, NY
Russell Farms, Rhinebeck, NY
Russell Maple Farm, Rome, PA
Rutland County Maple, Wallingford, VT
Schoonmaker, Torrington, CT
Share Harvest, LLC, Cambridge, MA
Shushan Sity Sap Shack, Shushan, NY
Silloway Farms, Randolph Center, VT
Somerset County Maple Producers Assn.,
  Salisbury, PA
Somerskogen Sugarbush, Minnetrista, MN
South Face Farm, Ashfield, MA
South Meadow Farm, Lake Placid, NY
South River Miso Co., Inc., Conway, MA
Spragues Maple Farms, Portville, NY
Spring Break Maple & Honey,
  Smyrna Mills, ME
Spring Hill Sugar House, North Kingston, RI
Spring Lake Ranch, Inc., Cuttingsville, VT
Stamford Museum and Nature Center,
  Stamford, CT
Stan Hess Family Maple Syrup, Ashland, OH
Steven Broderick, Eastford, CT
Stonewall Farm, Keene, NH
Strawberry Hill Farms, Skowhegan, ME
Stroup's Pure Maple Syrup, Kane, PA
Sugar Bush Creek Farm, Middlefield, OH
Sugar Tree Country Store, McDowell, VA
Sugar Tree Farm, LLC, Guilford, CT
Sugarbush Farm, Woodstock, VT
Sugarman of Vermont, Hardwick, VT
Sunday Brook Maple Products,
  E. Fairfield, VT
Sunnyside Maple, Gilmanton, NH
Sweet Retreat, Northfield, VT
Sweet Wind Farm, East Hartland, CT
T&K Farms, Cadiz, KY
The Farmyard Store, Derby, VT
The Fresh Air Fund, Fishkill, NY
The Outback Sugarshack, Boscawen, NH
The Warren Farm & Sugarhouse,
  N. Brookfield, MA
Thomas Bell Lumber, Riverton, CT
Thompson's Maple Products,
  Hilton Beach, ON
Thurston Family Farm, LLC, Peru, ME
Top Acres Farm, South Woodstock, VT
Troy Firth, Spartansburg, PA
Trudell Family Farm, E. Fairfield, VT
U. P. Sugar Shack, Germfask, MI
UMass Food Science Club, Amherst, MA
Vallee Farm, St.Albans, VT
Valley Road Maple Farm, Warrensburg, NY
Vandana Farms, Tolland, CT

Vande Bunte Maple, Hudsonville, MI
Vermont Maple Outlet, Jeffersonville, VT
Vermont Maple Sugarmakers Assoc., S. Royalton, VT
Vernon Duesler, Northville, NY
Wayne Juniver, No.Branford, CT
Welch's Maple, Wyoming, NY
Wendel's Maple & More, East Concord, NY
West Hill Sugarhouse, New Hartford, CT
Weston Priory, Weston, VT
Wettemann Farm, Guilford, CT
Wheeler Farm, Wilmington, VT
Whitman's Feed Store, Inc., N. Bennington, VT
Williams Farm Inc., Deerfield MA
Windridge Farms, LLC, Jeffersonville, VT
Wohlschlegel's Naples Maple Farm, Naples NY
Wolcott Maple Equipment, Dale, NY
Wood Homestead Maple, Stamford, NY
Zawalick's Sugar House, Florence, MA
Zimpfer's Maple Products, Attica, NY

## WINNERS AT THE 2013 NAMSC/IMSI CONERENCE IN MONTCTON, NB

### MAPLE CONTEST

**Maple Syrup - Best of Show**

Ralph and Amy Fideldy - Minnesota

**Light Amber (US), Extra Light (CA)**

1. Stuart and Corrine Peterson - MN
2. Denis Côté - New Brunswick
3. Paul Palmer - Vermont

**Medium Amber (US), Light (CA)**

1. Aggie Sojka Sperrey - Ohio
2. Pauline & Jacques Couture - VT
3. Richard and Pam Green - VT

**Dark Am)ber (US), Medium (CA)**

1. Ralph and Amy Fideldy - MN
2. Joe Polak - Minnesota
3. Kevin Brannen - Maine

**Maple Candy (Molded Soft Sugar)**

1. Kevin Brannen - Maine
2. Pauline & Jacques Couture - VT
3. Howard & Jeanne Boyden - MA

**Maple Cream (Maple Spread)**

1. George L. Riordon - NB
2. Kevin Brannen - Maine
3. Marc Chaisson - New Brunswick

**Stirred Maple Sugar (Granulated) ("Indian Sugar")**

1. Dean Stephenson - NB
2. Gus Hargrove - New Brunswick
3. Kevin Brannen - Maine

### PHOTO CONTEST

**Sugarbush Scenes**

1. Stuart and Corinne Peterson - MN
2. Marc Chaisson - New Brunswick
3. Frank Merriman - Ohio

**Maple People on the Job: Past or Present, Young and/or Old Folks**

1. Frank Merriman - Ohio
2. Brent Trites - New Brunswick
3. Michel Labbé - Quebec

**Creative Maple Photography: Close-ups, Unique Approach, Digital Manipulations, etc**

1. Michel Labbé - Quebec
2. Frank Merriman - Ohio
3. George Riordon - NB

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# COMING EVENTS

**24th ANNUAL HEBRON MAPLE FESTIVAL**
March 8 & 9, 2014 - 10:00 a.m. to 4:00 p.m.
Blizzard Dates: March 15th & 16th
Hebron, Connecticut, Route 66 & 85
For more information contact:
www.hebronmaplefest.com or E-mail: info@hebronmaplefest.com

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**28th WARKWORTH MAPLE SYRUP FESTIVAL**
March 8 & 9, 2014
Warkworth, Ontario, Canada
For more information contact:
Alice Potter Tel: 705-924-2057 Fax: 705-924-1673

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**NEW YORK STATE MAPLE TOUR**
July 13-15, 2014
Chautauqua Suites Hotel and Expo Center
215 West Lake Road, Mayville, New York
For more information contact:
www.cornellmaple.com or www.nysmaple.com

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**NAMSC/IMSI ANNUAL MEETING**
October 22-24, 2014
Old Orchard Inn, Annapolis Valley, Nova Scotia
For more information contact:
william@acadianmaple.com


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