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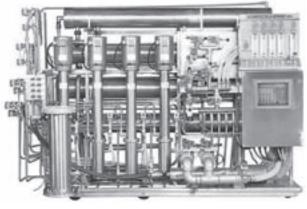


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MAPLE SYRUP DIGEST

Official publication of the

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GREETINGS FROM YOUR PRESIDENT



My main goal as President of NAMSC is to maintain our strong position in the maple world. With the able assistance of Mike Girard, Joe Polak, Eric Randall, and Cecile Brassard Pichette, and all of the delegates and alternates, I am confident that the NAMSC will be a positive force for maple in the coming year.

A big thanks goes to Cecile for her leadership the past two years and also for the guidance of Past-President Rick Marsh. Mr. & Mrs. Roy Hutchinson should be commended for twenty-four years as Maple Digest editors as well.

The New Brunswick Maple Syrup Association did a great job in hosting the recent NAMSC convention in Moncton. Let us not forget the great effort put forth by the vendors who make it possible to see the latest in maple technology and equipment. I look forward to the 2014 meeting and feel confident that the Maple Producers Association of Nova Scotia will be great hosts.

We welcome a new member as Rhode Island has joined as the seventeenth State/Province in NAMSC. I look forward to working with the Rhode Island delegation.

Most of us are working to make necessary repairs to tubing, installing new systems or updating our sugar houses for the up-coming season before the bitter cold arrives and the snow flies. Although there is no way to predict if 2014 will be as productive as 2013, we still strive for a good year. It is best to be prepared.

With Best Regards, Dave Hamilton

THOUGHTS ABOUT CHRIS RUSSO

(Obituary in the October, 2013 Issue)

It is with a heavy heart that I communicate this message. Chris Russo, my long time co-worker, mentor and friend passed away on July 16th, after a battle with cancer.

Chris was a delightful, dynamic, dedicated and caring person. His contributions to Hillside Plastics, Sugarhill® Containers, and the Maple industry are immeasurable. When I think of Sugarhill®, Chris always comes to mind, and I realize his inspiration and wisdom has been a powerful factor in our success. I know we have impossible shoes to fill. We will continue to strive to do our best, just like Chris would have expected.

I wish we all had more time with Chris. I miss his smile, easy laugh and his company. I found his positive outlook contagious. Chris's quick wit and wonderful sense of humor made our interactions interesting and memorable.

Chris always wanted to do the correct thing. His steadfast values of honesty and trust along with his belief in mankind guided any necessary decisions. Chris's thoughtful insight was respected, valued and desired.

I feel for Chris's family. I wish them comfort and most of all peace, knowing that Chris's influence has made the world a better place.

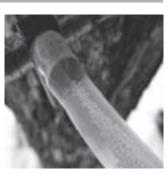
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IMSI NEWS

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 on Wednesday, October 23rd and Thursday, October 24th, 2013 respectively at the Delta Beausejour Hotel in Moncton, New Brunswick. 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 listing of the 2013 IMSI Board of Directors is posted on the IMSI website. www.internationalmaplesyrupinstitute.com

DISCUSSIONS RELATED TO SUPPLY AND DEMAND OF MAPLE SYRUP

The IMSI Board of Director representatives from both Canada and the United States reported on the supply and demand for maple syrup in the different state and provincial jurisdictions. It was reported earlier in 2013 that a very good or bumper crop was experienced in most areas in 2013 with the production of lighter syrups being prevalent, including in Quebec. Production of maple syrup in Quebec was about 120 million pounds compared to 102 million pounds in 2012. Total production of maple syrup for 2013 in Canada and the US combined is estimated at 170 million pounds. At present there is about 63 million pounds of maple syrup in the Federation of Quebec Maple Syrup Producers Strategic Reserve. The

quality of maple syrup produced in 2013 was generally reported as being very good or excellent. This record production is attributable to a combination of favourable weather conditions, expansion of number of taps in some jurisdictions and higher average tap yields due to the adoption of modern equipment technologies in recent years.

Current markets for maple syrup were reported as being very good to excellent in all of the states and provinces that reported at the IMSI Board meeting. There has also been some very modest growth in overseas markets due in large measure to investments in market development made in recent years by the Canadian government, Federation of Quebec Maple Producers as well as by maple producer cooperatives and packers in the United States and Canada with significant syrup exports. Markets for maple syrup vary significantly among the different producing regions. For example, the Quebec maple industry relies heavily on exports of bulk maple syrup while Ontario sells about 85% of its production at retail within the province and imports as much as 40% of the syrup consumed in that province. Generally, smaller producing regions are able to market a larger proportion of their production at retail and capitalize on value added. The importance of marketing maple syrup for varied and innovative uses was stressed during the IMSI Board meeting in Moncton. It was reported that maple syrup produced in 2013 was committed or sold in many areas. However, some reports suggested that bulk syrup could still be readily accessed in large quantities

by producers and packers who require additional syrup.

While current markets for maple syrup are very good and generally prices are stable, some concern continues to be expressed that a planned production increase may not be fully absorbed by existing markets for syrup in North America and overseas. The prevailing sentiment from the August and October 2013 IMSI Board meetings is that governments should not incentive capital investments in maple syrup production facilities but rather focus investment assistance on market development both in North America and overseas. The distinctive nutritional merits of pure maple syrup, combined with implementation of the Standard Definition, Grades & Nomenclature proposed by the IMSI, should be fully capitalized on in future marketing efforts. An IMSI working group com-Harran, prised of Mark Bonenberg, Simon Trepanier, David Marvin and Dave Chapeskie was established to study this market supply and demand related issue.

A very interesting information transfer session on current and future supply and demand for pure maple syrup was held following the business component of the IMSI's Annual Business meeting. Simon Trepanier, Director General of the Federation of Maple Syrup Producers of Quebec (FQMP), Matthew Gordon, **Executive Director of the Vermont Maple** Sugarmakers Association (VMSMA) and Michael Farrell of Cornell University provided perspectives from FQMP, VMSMA and Cornell University respectively. For further information on this very informative session, contact Dave Chapeskie, the IMSI's Executive Director.

IMSI'S ADULTERATION TESTING ASSISTANCE PROGRAM

For many years, the IMSI has facilitated the testing of syrup samples in the international marketplace that have been suspected of being adulterated. All IMSI members are strongly encouraged to take advantage of the IMSI's adulteration testing assistance if they suspect that syrup is adulterated anywhere in the world marketplace.

In 2013, two samples of syrup obtained overseas which were suspected of adulteration were submitted to Centre Acer and the University of Waterloo in Ontario for adulteration testing. The results from this testing verified that the samples were not adulterated.

IMSI members are strongly encouraged to remain vigilant regarding suspect syrup which is thought to be adulterated in the North American and overseas marketplace. Samples should be purchased from retail (4 sealed containers) and forwarded directly to Tim Perkins, UVM Proctor (US IMSI members) and to Yves Bois, Centre Acer (Canadian IMSI members).

For further information regarding the IMSI's adulteration service, please contact the IMSI's Executive Director, Dave Chapeskie.

ORGANIC CERTIFICATION COMMITTEE REPORT

Kathy Hopkins, Chair of the IMSI's Organic Certification Committee, reported on the status of the Organic Certification Committee work. In advance of the IMSI Board meeting in Moncton, the Committee had prepared and distributed an updated

draft chart showing differences between organic certification standards at the federal level in Canada and the United States as well as among the different States which have their own standards. The IMSI Board of Directors voted to accept the comparison chart. It was recognized as important that the IMSI Organic Certification Committee remain active and continue to monitor any changes to existing Organic Certification Standards for Maple Syrup.

There was further discussion at the IMSI Board meeting regarding the merits of future harmonization of organic certification standard in Canada and the United States. The Board looked favourably on the possibility that the IMSI would pursue harmonization of organic certification standards in the future. However, it was recognized that the IMSI has a full plate of very important project initiatives at present, including advancing the IMSI's Standard Grades and Nomenclature Initiative through to full implementation, and that it would be advisable to defer engagement on harmonization of organic certification standards for the time being.

IMSI STANDARD GRADES AND NOMENCLATURE UPDATE

The IMSI has been very active in helping move towards adoption of the International Maple Grades and Nomenclature Proposal which was recommended for adoption to Federal and state/provincial governments in the United States and Canada in September 2011:

Communications and Information Transfer - The IMSI recognizes that it is very important to communicate and transfer information to maple producers and packers as we come closer to

implementation of the new maple grades and nomenclature standard in the United States and Canada, A communiqué was recently distributed to IMSI members and published in the fall 2013 edition of the Maple Digest intended to answer questions about the pending maple grade system changes. These communiqués will continue as we move closer to implementation of the new grade standard. It appears as if Vermont and New York State (2014 transition year with full adoption in 2015) will be moving towards adoption of the new international grade standard in 2014 while federal and other state/provincial governments will most likely adopt the new standard for 2015. Most governments are expected to allow for a transition period to facilitate the transition between current maple grades and the new international grades standard.

Responding to Technical and Other Questions - The IMSI Executive Director and IMSI Maple Grades Committee members continue to address questions from maple producers, maple packers and government officials regarding grade and nomenclature changes.

Input Into Government Draft Grade Rule Documents - The IMSI continues to respond to questions and required input from Federal and State/Provincial maple grade rule regulatory authorities regarding specific aspects of the IMSI Grades and Nomenclature Proposal.

Monitoring and Comparing New Maple Grade Rule Adoption by Federal and State/Provincial Governments - The IMSI has been closely monitoring progress towards

adoption of the maple grade rules proposed by the IMSI at the Federal and State/Provincial levels. A recent comparative update has been provided to IMSI members and published in the Maple Digest.

Political Lobbying to Encourage Acceleration of Regulatory Approvals Process - The IMSI and IMSI Directors have been active in political lobbying with the intent to accelerate the regulatory approvals process where this is seen as warranted. This effort will continue as required through to adoption of the new grade rules.

As part of the North American Maple Syrup Council (NAMSC) meeting forum, a panel was organized to update attendees at the NAMSC and IMSI Annual meetings regarding status of adoption of the new internamaple grades standard. tional Panelists were Dave Chapeskie (IMSI), Dr. John Garwood (Marketing Consultant, Quebec), Eric Randall (New Your Maple Syrup Producers) Matthew Gordon (Vermont Maple Sugarmakers Association).

MISLEADING LABELING AND PRESENTATION OF SYRUP PRODUCTS

At recent IMSI Board of Directors meetings, there has been considerable discussion regarding the issue of misrepresentation in the market-place both in North America and overseas of products using the word "maple" or words "maple syrup" and the inappropriate use of visuals taken from the maple industry. Many of these products contain none or very minimal pure maple products. It was

agreed that the IMSI should pursue a number of options for countering this situation and become more fully engaged in preventative action.

Some actions which will be undertaken by the IMSI are summarized below:

- 1. The IMSI will send a tailored letter to selected companies outlining the issue and requesting action where they are believed to be misrepresenting maple on their product labels and/or consumer displays. An incremental approach will be taken to issuing letters and responses will be closely monitored. The tone of these letters will be positive, encouraging the companies to utilize pure maple products in their products.
- 2. Dave Chapeskie and Matthew Gordon (VMSMA) will work to map out existing and related legal statutes which are pertinent to the issue in Canada and the United States respectively. Ongoing IMSI input into regulatory amendments will be tied to this where the opportunity presents itself.
- 3. The IMSI would explore programs related to food product authenticity such Codex as Alimentarius (CA) and the American Origin Products Association (AOPA) to assess their potential to help address the issue. The IMSI has ioined the AOPA in order to become more familiar with that organization and to more fully assess its potential in helping assert product authenticity for pure maple products.

These actions outlined by the IMSI Committee have been endorsed by the IMSI Board of Directors. Other actions such as support for University Case Studies, engagement of the press and

use of social media and engagement of politicians may be considered either by the IMSI or by IMSI members in collaboration with the IMSI. These potential actions will be discussed and developed further as warranted. Jake Couture, IMSI Director for the VMSMA, provided an update from his recent trip to France where he recently had an opportunity to discuss AOPA and Product Authenticity with other AOPA members.

DEVELOPMENT OF A POSITION PAPER FOR INVASIVE EXOTIC INSECTS

Ray Bonenberg, IMSI Director representative for the Ontario Maple Syrup Producers Association, provided an update on the status of the IMSI Position Statement on Exotic Insect Pests. The Position paper is focused on Asian Longhorned Beetle primarily with a secondary focus on Emerald Ash Borer (EAB).

A first draft of the Position Statement was distributed to the IMSI Board members and others in advance of the Board of Directors meeting in Moncton. Ray walked the IMSI Board and others in attendance at the meeting through the draft position paper. He stressed how important it was for the maple industry to remain vigilant and engaged on a continuous basis so that governments continue to rate the issue of exotic pests as a very high priority for funding research as well as preventative and containment actions.

Ray is currently reaching out to maple industry advisors and others for input into the draft position statement and plans to present the IMSI's Board of Directors with a final draft for their next board meeting in Quebec in February 2014.

IMSI SPONSORED AWARDS (2013)

The winners of the IMSI sponsored Annual Awards were announced in Moncton. Steve Selby was the recipient of the IMSI Lynn Reynolds Memorial Leadership Award for outstandina leadership in helpina advance the North American Maple Syrup Industry. There were two recipients of the IMSI's Golden Maple Leaf Award in 2013. Pierre Lemieux received the Award for his significant work in advancing programs to market pure maple products in North America and overseas and Donald Lapierre received the award for his very significant contribution to innovations in maple syrup production equipment of benefit to the North American Maple Syrup Industry.

IMSI SPONSORED MAPLE GRADING SCHOOL

The Maple Grading School continues to be rated highly by course participants and the IMSI Board is strongly supportive of its continuation. The School now offers a component related specifically to enhancing course participant awareness regarding the IMSI Standard Grades and Nomenclature Initiative, including the use of new temporary colour classification kits.

There will be follow-up discussion in 2013/14 regarding opportunities to extend the reach of the Grading School in Canada and the United States and to work towards a uniform approach to maple grades awareness and education in North America. This effort will help assist implemen-

tation of the new international grade standard for maple syrup.

The IMSI members and others may learn more about the IMSI sponsored Grading School and its upcoming offerings by accessing the University of Maine - Cooperative Extension website with the following link:

http://extension.umaine.edu/maple -grading-school/

Applicants for the grading school may register on-line.

If additional information is required please contact Kathy Hopkins at 207-474-9622 or khopkins@maine.edu.

2014 IMSI BOARD OF DIRECTORS MEETINGS

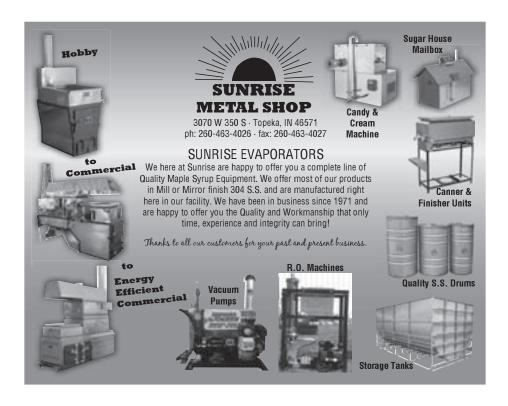
Tuesday, February 4th, 2014 -Union of Agricultural Producers Building, Longueuil, Quebec

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



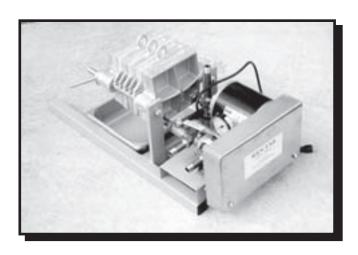
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UVM PROCTOR MAPLE RESEARCH CENTER RECIPIENTS OF THE RICHARD G. HAAS DISTINGUISHED SERVICE AWARD

The North American Maple Syrup Council at its 54th Annual Meeting in Moncton, New Brunswick, presented the Richard G. Haas Distinguished Service Award to the University of Vermont, Proctor Maple Research Center of Underhill, Vermont.

This award is presented annually to a leading Maple Research Organization, Maple Research Professional or Research Alliance Partner for their work and/or contributions to the maple syrup industry.

UVM Proctor Maple Research Center was recognized for their outstanding contributions to the advancement of the maple industry and recognized the individuals who comprise of Proctors maple faculty and staff including: Dr. Tim Perkins, Research Professor and Director; Dr. Abby van den Berg, Assistant Professor; Tim Wilmot, UVM Extension Maple Specialist; Brian Stowe, Sugaring Operations and Land and, Mark Isselhardt. Manager: Research Technician/Analyst.

The UVM - Proctor Maple Research Center established in 1946 has maintained a focus on maple syrup production, research and education since the mid 1800's. UVM is very proud of its history which includes the work of many prominent maple scientists and educators. There is a long list of the Center's historical discoveries as well as many recent advances made through research

that benefit the entire maple industry. One of the great strengths of the Proctor Center team is its melding of research and extension. Research projects are developed jointly by both researchers and extension personnel, and always with the educational component in mind.

As part of their interaction with the maple industry, the faculty and staff at the Proctor Center are frequent contributors of research papers to the Maple Syrup Digest, long-time supporters of the efforts of the NAMSC Research Fund and the faculty at Proctor conduct dozens of presentations annually across the maple world and field a multitude of questions from the public and all segments of the maple industry throughout the year.

Joe Polak, NAMSC Secretary / Treasurer and Mike Girard, NAMSC Executive Director jointly presented the award to Dr. Timothy Perkins who received the award on behalf of the Proctor Maple Research Center and team.

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2013 North American Maple Syrup Council 54th Annual Meeting and Convention October 23-26, 2013 Delta Beausejour, Moncton, New Brunswick

The 54th annual meeting of the North American Maple Syrup Council (NAMSC) was hosted by the New Brunswick Maple Syrup Association, Inc. at the Delta Beausejour, Moncton, NB. The theme for the convention was "In Everyone's Taste".

The conference was held in conjunction with the 39th annual meeting of the International Maple Syrup Institute (IMSI). Meetings began Wednesday October 23 with informal NAMSC officers, delegates, alternate delegates and committee members; the IMSI board of directors meeting; and, maple research extension meeting.

The convention was bilingual as the Province of New Brunswick is bilingual. Cecile Brassard Pichette, president NAMSC, opened the conference and introduced Honorable Glaydon Nicholas, Lieutenant Governor New Brunswick, Yvon Poitras, President IMSI, Michael Salmon, President New Brunswick Maple Syrup Association, Honorable Paul Robichard, NB Department of Natural Resources, and Mrs. Dawn Arnold, Councellor at Large, City of Moncton.

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

Delegates (D) and Alternates (A) present included:

- Maple Syrup Producers Association of Connecticut; J. Mark Harran (D), Robert Dubos (A)
 - Indiana Maple Syrup Association; Keith Ruble (D), Dave Hamilton (A)
 - Maine Maple Producers Association; Lyle Merrifield (D), Kevin Branen (A)
 - Massachusetts Maple Producers Association, Inc.; Winton Pitcoff (D), Ed Parker (A)
 - Michigan Maple Syrup Association; Larry Haigh (D), Debbie Thomas (A)
 - Minnesota Maple Producers Association, Inc.; Ralph Fideldy (D), Stu Peterson (A)
- New Brunswick Maple Syrup Association, Inc.; David Briggs (D), Michael Salmon (A)
 - New Hampshire Maple Syrup Association; Hank Peterson (D), Bill Eva (A)
 - New York State Maple Producers Association; Eric Randall (D), Dwayne Hill (A)
 - Maple Producers Association of Nova Scotia; Avard Bentley (D), Kevin McCormick
 A)
 - Ohio Maple Producers Association; Agnes Soyka-Sperry (D), Dr. Gary Graham (A)
 - Ontario Maple Syrup Association; Bill Robinson (D)
 - Pennsylvania Maple Syrup Producers Council; Wayne Clark (D), Larry Hamilton (A)
- Maple Syrup Producers Cooperative of Quebec (Coopérative de Producteurs de Sirop D'Érable du Quebec) Cecile Brassard Pichette (D), Michel Labbé (A)
 - Vermont Maple Sugar Makers Association; Paul Palmer (D), Rick Marsh (A)
- Wisconsin Maple Syrup Producers Association, Inc.; James Adamski (D), Joe Polak (A)

NAMSC President, Cecile Brassard Pichette, introduced Thomas Buck from Rhode Island Maple Syrup Producers Association. RIMSPA has requested membership in NAMSC. Rhode Island is the 17th member of the Council. **M/S**, **J. M. Harran / P. Palmer, motion carried.**

The secretary reported all member states and provinces were present and represented.

The minutes of the 53rd annual Meeting held at Mystic, Connecticut was presented as written by secretary, Joe Polak. **M/S**, **E. Randall / W. Pitcoff, motion approved.**

Financial Report: Report of the General Fund FYE August 31, 2013 was presented by treasurer, Joe Polak.

- Funds in checking account: \$18,649.23.
- Cash receipts \$50,588.87 and disbursements were \$31,939.64, leaving net gain of \$18,649.23
 - Total investments (CD's) \$100, 512.47.
- Income is based solely on dues from member states and provinces. \$12,336.00 was billed last year, an increase of \$772.00.

M/S, M. Harran/R. Fideldy, motion to approve report subject to Audit Committee review.

Maple Digest Report: Roy Hutchinson, editor, reported income \$27,528.12 and expenses of \$26,540.70, gain of \$823.95.

This is the 24th year Roy has served as editor of the Maple Syrup Digest. Roy announced that the June 2014 edition will be his last issue and he would be stepping down as editor. Thanks were extended to Roy and Mary Ellen for their years of dedicated service to the Maple Syrup Digest and the NAMSC. **M/S**, **D**. **Briggs / W. Pitcoff, motion approved.**

Executive Director's Report: Strategic Plan: Mike Girard presented the 2013 NAMSC Strategic Plan to the Delegates for their approval. The plan was a result of input received from the delegates, alternates and committee chairs who participated in the 2012 planning session held in Mystic CT. This plan will assist Council leadership through its stated common goals and objectives for the next two to five years. **M/S, L. Haigh / A. Soyka-Sperry, motion to adopt the Strategic Plan approved as presented.**

Elmer and Mary Kress Donation: Mike Girard announced that a gift was received through Sarah Davies at the request of her deceased parents Elmer and Mary Kress of Oxford Connecticut. Elmer Kress was the creator of the Kress Jug, the first plastic container successfully used for the hot packing of pure maple syrup. Elmer was also one of the five founders of the Maple Syrup Producers Association of Connecticut. The generous gift of \$10,000.00 from Mary and Elmer will be earmarked for the Council's reserve fund which helps ensure the future work of the NAMSC.

Committee Reports: NAMSC Research Fund financial report was submitted by Joe Polak. Income: \$33,367.70 and expenses \$24,556.91, net increase of \$8.810.79.

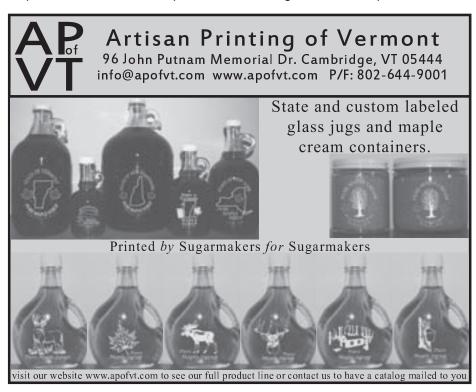
Committee chairman, Winton Pitcoff made the following recommendations to fund selected maple research projects:

- "Detection of Toxins in Contaminated Maple Syrup", University of Maine Extension, Kathy Hopkins, \$9,245.00.
- "Tap Hole Injury in Red Maple", University of Vermont Extension, Tim Wilmot, \$5,000.00.
- "Evaluation of Safety Aspects Regarding the Use of Isopropyl Alcohol as a sanitizer of the maple Sap Collection System", Centre Acer, Luc Lagacé, Production Efficiency, \$10,000.00.

M/S, W. Pitcoff / E. Randall, motion approved.

The Research Fund committee recommendations also included providing the presenter(s) of the final research results (on future funded research projects), an allowance of up to \$1,000.00 for reimbursable travel and convention expenses. M/S, W. Pitcoff / E. Randall carried.

Website Committee report was presented by Karl Zander. The NAMSC website has been updated and a members' only page will soon be added to www.northamericanmaple.org including a directory provided by the secretary for officers, delegates and committee members. An educational program calendar also will be added to help coordinate educational speakers and meeting to avoid overlap.



Convention Planning Committee chair, Joe Polak, reported that the committee is looking for feedback from conference attendees regarding the new shorter meeting format initiated at this meeting.

Finance Committee guidelines are being developed by the committee to establish a formal financial reserve account. Records will be researched to document and honor the wishes of the individuals who have bequeathed or donated funds over the years to the Council and presently held in Certificates of Deposit.

Invasive Exotic Insects Position Paper has been drafted by Ray Bonnenberg on behalf of the IMSI and the NAMSC. The paper addresses the prevention, detection, response and management of the ALB and EAB as well as other invasive species. Input from both the NAMSC and IMSI is sought for the Position Paper planned for completion in February 2014.

American Maple Museum Hall of Fame report was presented by Chairman Gary Gaudette. In 2013 Jerry Kless (Quebec) and Dale McIssaac (Nova Scotia) were added to the list of eighty (80) individuals that have been inducted to the Hall of Fame since 1977.

Maple Digest Advisory / Translation Committee Chairman Rick Marsh requested that Research reports summaries be submitted from the researchers in both English and French going forward.

Rick thanked Roy and Mary-Ellen for their years of dedication to the Maple Syrup Digest. He stated the transition to a new Digest editor will be a challenge and that the committee will review its options and report back to the Council at its closing session on Friday with their recommendation. Rick extended an invitation to anyone interested in the editor's position to let him know as soon as possible.

North American Maple Syrup Manual Update: Dr. Tim Perkins reported the current (2nd) edition, required 10,000 hours to produce and there are 10,830 copies now in circulation. The proposed update includes the rewrite of Chapters: #6 - Sap Production; #7 - Syrup Production; #8 - Syrup Filtration / Grading / Packaging; #11 - Economics and a new chapter on Food Safety. The next edition (3rd) could be a complete reprint or alternatively it could be an addendum or supplement to the 2nd edition (Copyright; 2006 Ohio State University, 329 pages plus 5 appendix sections). If the supplement option is selected it would extend the complete reprint date to year 2020. Dr. Perkins requested an initial \$4,500.00 from the Council for proofing assembly and travel expenses. M/S, E. Randall / J.M. Harran, Motion carried.

The Sugarmakers Companion - Mike Farrell introduced his new book now available from publisher Chelsey-Green. This publication is a recommended resource that complements the North American Maple Syrup Producers Manual.

Policy Committee - Winton Pitcoff has offered to chair this new committee. Maple Syrup is one of the lesser regulated food industries with the Food Modernization Act and FDA. The purpose of the committee is to help identify, review and offer comments / alternatives to proposed policies and regulations that will represent the best interests of maple. Other concerns would also focus

on any farm or forest related legislation that affects or protects the maple industry. This committee will work with the IMSI and other forest or farm related groups that share the same interests.

IMSI Reports: Dave Chapeskie reported on actions being taken by the IMSI including:

- Misrepresentation of Maple in the Marketplace requiring companies who use "maple" on the label or advertising to use maple in the product.
- IMSI Grading and Nomenclature Standards U.S. and Canada are implementing the new grading standards. Maine, Vermont and New York have enacted laws to change to the new standards with some other states planning the introduction of the new standards in the near future.
- Balancing Supply and Demand for Maple Focus on balancing supply and demand within the industry. Encouraging increased marketing of maple products.

Food Safety Modernization Act Update was reported on by Kathy Hopkins. Producers are required to register with the FDA and the FSMA food manufacturing rules do apply to maple production.

National Agricultural Statistics Service report was presented by Gary Keough. Overall there was a 70% increase in 2013 U.S. syrup production from an estimated 10.6 million taps. All states increased the number of taps in 2013 except Maine. Average production was .3 gallon syrup per tap.

Maple production statistics are important to the industry decision making, syrup promotion, educating our policy makers and facilitating financial assistance for the industry. For details of 2013 report you can visit: http://www.nass.usda.gov/Statistics_by_State/New_England_includes/Publications/0605mpl.pdf

Maple Nutrition Report - Ray Bonnenberg talked about Maple Nutrition and reported that Rack Cards and Posters are available online at the IMSI website: http://www.internationalmaplesyrupinstitute.com/

Maine Maple Industry Task Force - Kathy Hopkins reported on leasing and conservation easements with regards to maple and that the Department of Agriculture is considering licensing of maple production facilities. The Task Force is on record supporting maple educational opportunities and developing a maple commission.

Maple Specialists Report by Chris Dickie stated invasives are a serious and continuing problem in the forest. There have been many technical production changes in the maple forest. Chris warned of a shrinking number of extension personnel involved in maple and the question of future replacements to service the industry.

Maple Tap Act - Mike Farrell reported on status of Act which was first introduced in 2008 as part of the Farm Bill. There have been several rewrites and the current draft dedicates funding for research, extension and marketing. Contact your congressman and encourage their support of the Farm Bill.

Newsletter Committee Display - Tim Perkins reported for Tim Wilmot on the Newsletter Committee that there was a newsletter display of most local associ-

ations. Editors of state and provincial newsletters were encouraged to exchange newsletters to increase communications between the local associations.

OLD & NEW BUSINESS

Maple Digest Editor Recommendation - Rick Marsh, Chairman of the Maple Digest Advisory Committee announced the interest of four (4) candidates for Maple Digest editor position. After committee review of the candidates, Winton Pitcoff of Ashfield, Massachusetts was unanimously selected to be recommended for the appointed position of editor of the Digest.

Maple Policy Committee - Chairman Winton Pitcoff further commented on the Food Safety Modernization Act and that it exempts most syrup producers. Maple cream and candy production however are not exempt. He suggested contacting your local Farm Bureau with your comments and input regarding the Act.

Funding Exotic Forest Insects Effort - Mike Girard noted the importance of supporting the recommendations of the IMSI proposed Position Paper on Exotic Forest Pests which is expected to be completed by February. With the next NAMSC meeting being a year away it might be in the Council's best interest to approve funds to enable the Council to react if necessary to action steps in the Position Paper in a timely manner. Mike proposed that the Delegates approve the funding of up to \$5,000.00 for the implementation of any action needed to expedite steps in the plan as approved by the Executive Committee. **M/S. J. M. Harran / B. Robinson, Motion Approved**

Audit Committee report submitted: October 24, 2013, we the Audit Committee (J. Mark Harran, David Briggs and Dave Hamilton) reviewed the NAMSC financial summaries shared with us by Joe Polak, secretary/treasurer of NAMSC as well as the compiled report by Richard A. Mamer, CPA, S.C. In so doing, we found no discrepancies or issues. Time did not permit an in-depth review of supporting documents, but we found no evidence in the summaries that such a review was necessary. It is important to note that Joe Polak made all relevant documents available to our committee. J Mark Harran

Elections - Nominating Committee Report: Chairman Rick Marsh recommended the following nominations:

Life Member(s): Alfred Bolduc (Maine) No further nominations from the floor. **M/S, J.M. Harran / E. Randall, motion carried**

Associate Members (term ending 2016): Garth Atherton, Jerry Kless, Dr. Brian Chabot, Steve Childs, Dr. Gary Graham, Bill Brown, Wes Schoepke, Corey Grape, Gretchen Grape, Brad Gillilan, Mike Farrell, Maurice Giguere, Garry Sink, Jean Marie Chabot, Dale McIssac, Bruce Bascom, Luc Lagacé, Alfa Arzate, Steve Broderick, Brenda Murphy, Brian Stowe, Mark Isselhardt, Dr. Tim Perkins, Dave Chapeskie, Chris Dickie and Mathew Gordon. No further nominations from the floor. M/S, J. M. Harran / D. Briggs, motion carried

Officers 2014: Dave Hamilton, President, Eric Randall, Vice President and Joe Polak, Secretary / Treasurer. No further nominations from the floor. M/S, W. Pitcoff / P. Palmer, motion carried

Revise Job Descriptions - Winton Pitcoff suggested revising the Job Descriptions for Executive Director and Secretary / Treasurer to provide an

allowance of up to \$1,000.00 for travel and convention reimbursement annually. M/S, W. Pitcoff / E. Randall, motion carried

Appointments: President Elect Dave Hamilton appointed the following for 2014:

- Audit Committee: J. Mark Harran, chair, David Briggs, Bob Dubos, Cecile Brassard Pichette.
- Convention Planning Committee: Joe Polak, chair, Ralph Fideldy, Mike Girard, Dave Hamilton, Rick Marsh.
- Finance Committee: Cecile Brassard Pichette, Chair, Mike Girard, Dave Hamilton, Rick Marsh, Joe Polak.
- Maple Advisory Committee: David Briggs, chair, Luc Lussier, Rick Marsh Winton Pitcoff, Bill Robinson, Karl Zander.
- Maple Hall of Fame Committee: Gary Gaudette, chair, Norman Anderson, Avard Bentley, Roy Hutchinson, Luc Lussier, Richard Norman.
- Maple Producers Manual: Mike Girard, chair, Dave Hamilton, Winton Pitcoff, Joe Polak, Eric Randall.
 - Newsletter Committee: Tim Wilmot, chair
 - Nominating Committee: Rick Marsh, chair, David Briggs Larry Haigh.
- **Policy Committee:** Winton Pitcoff, chair, Dave Chapeskie, Mike Girard, Dave Hamilton, Yvon Poitras, Brenda Murphy, Matt Gordon.
- Research Committee: Winton Pitcoff, chair, Frank Chaikowski, Jacques Couture, Mike Girard, Luc Lussier, Henry Marckres, Tom McCrumm, Paul Palmer, Joe Polak, Eric Randall, Michael Salmon, Ron Wenzel.
- **Strategic Planning Committee:** Mike Girard, chair, James Adamski, Dave Hamilton, Rick Marsh, Paul Palmer, Joe Polak, Martin Plante.
- **Translation Committee:** Cecile Brassard Pichette, chair, Rick Marsh, Yvon Poitras.
- Website Committee: Karl Zander, chair, Mike Girard, Cecile Brassard Pichette.

Executive Director: Mike Girard reappointed for 2014 Motion to Adjourn M/S, K. Ruble / J. M. Harran

Annual Banquet Program and Recognitions

Maple Hall of Fame Committee chairman Gary Gaudette announced that 2014 inductees to the Hall of Fame are Don and Betty Lockhart (VT) and Jacque Couture (VT). The ceremony will be held in Croghan New York at the American Maple Museum on May 17, 2014.

NAMSC's Richard G. Haas Award Distinguished Service Award was presented by Joe Polak and Mike Girard to University of Vermont, Proctor Maple Research Center, Underhill Vermont with special recognition given to faculty members Dr. Timothy Perkins, Dr. Abby van den Berg, Tim Wilmot, Brian Stowe and Mark Isselhardt. This award was given in recognition and gratitude for their outstanding contributions in the advancement of the industry through research and education.

IMSI's Golden Maple Leaf Award was presented by Yvon Poitras to Pierre Lemieux and Donald Lapierre.

IMSI's Lynn Reynolds Memorial Leadership Award was awarded by Yvon Poitras to Steve Selby for his recognized service as Treasurer of the International Maple Syrup Institute.

Submitted by,

Joe Polak, Secretary/Treasurer NAMSC

This was reported at the IMSI Panel Discussion

The Federation of Quebec Maple Producers reported in 2013 Quebec produced 120.3 million pounds, USA 35.9 million pounds and other provinces 12.5 million pounds. Currently 66.7 million pounds held in reserve. Centre ACER Inspection department inspects for the Federation. A quota system in place in Quebec since 2003 regulates the sale and controlled growth of syrup production. Producers can make more than their quota but are required to wait for payment from the Federation of any excess produced. A targeted strategic reserve of 40 million pounds is held in three warehouses in Quebec.

Syrup Demand is 120 - 130 million pounds per year. A total of 90% of Quebec production is exported with 65% exported to USA; 8% to Japan; and, 6% to Europe (Germany). Marketing example "Choose better sugar over regular sugar".

Mathew Gordon, executive director Vermont maple Sugar Makers Association, stated 4,000,000 taps in Vermont.

Mike Farrell reported 1975 U.S. consumption of maple syrup averaged 1 ounce per person, 2009 average was 3 ounces per person. U.S. is tapping 5% of usable sugar bushes. We need to develop more products using maple, e.g. maple soda, maple milk.



The 2014 New York State Maple Producers Winter Conference Has Plenty on Tap for You

A producer-focused 2014 NYS
Maple Conference with practical
and hands-on sessions for maple
farms to enhance existing and
expanding operations

January 3 and 4, 2014

January 3rd and 4th will be here before you know it so be ready by planning to attend the 2014 New York State Maple Conference. The 2014 Maple Conference will be held in the same great location, the Vernon-Verona-Sherrill High School in Verona, New York on Friday evening January 3rd and all day Saturday, January 4th. Opportunities include having access to the large trade show with many exhibitors displaying plenty of specialized equipment for meeting maple producer needs. You will have access to the latest in research and grower experiences regarding maple sap collection, vacuum, syrup production, promotion, marketing, filtering, forest management, beginner information and the making of a variety of maple products. The Friday evening auction provides producers with the opportunity to sell excess equipment or supplies as well as the chance to get a great buy on what others put up for sale.

The conference kicks off Friday evening with trade show at 5 and sessions at 5:30 PM featuring a presentation by J. R. Sloan of Green

Mountain Mainlines of Vermont on Practical Tubing Installation along with Jenifer and Michael Parker of Parker Family Maple Farm demonstrating the making of a variety of maple value added products. These presentations will be followed by the third annual maple conference auction. Contact Keith to get your items in the auction! The conference is open to the general public, as well as maple producers, and is geared to all levels of sugar makers. Saturdav's trade show opens at 8:00 AM with workshops starting at 9:00AM. Be sure to check out the associated listing of speakers and topics.

Registration costs have not gone up. If you pre-register, Friday night is only \$15, Saturday only \$30, Friday and Saturday only \$40. At the door registration for Friday is \$20, Saturday at the door \$40. Held at the Vernon-Verona-Sherrill (V.V.S.) High School, Verona, New York, the conference is sponsored by the V.V.S. New York State Maple Producers Association Cornell Maple Program and Cornell Cooperative Extension. The V.V.S. High School is located between Utica and Svracuse. New York on State Route 31 just two minutes from NYS Thruway Exit 33.

For additional information contact V.V.S. FFA advisor Keith Schiebel at kschiebel@vvsschools.org. Registration forms are also available at the New York State Maple Producers Website: www.nysmaple.com or the Cornell Maple Program website: www.cornellmaple.com.

2014 NEW YORK STATE MAPLE TOUR TO BE HELD IN CHAUTAUQUA COUNTY

Stephen Childs, New York State Maple Specialist

The 2014 New York State Maple Tour is scheduled for July 13-15, 2014. The tour will be hosted by the Chautauqua County Maple Producers Association and centered at the Chautauqua Suites Hotel and Expo Center, 215 West Lake Road, Mayville NY 14757. Chautauqua Suites is located on beautiful

Chautaugua Lake and is close to many area attractions including boat tours, the Grape Discovery Center, Lucille Ball Desi Arnaz Center for Comedy. Dunkirk Light House. Chautaugua Institute, local wine trails and much more. The tour will be visiting a variety of maple sugar houses and sugarbush locations. Come prepared to experience some maple demonstrations, some outstanding maple operations and another great New York State Maple Tour. Write the date, July 13-15, Sunday Monday and Tuesday in your calendar for 2014 today.

Further information will be accessible at www.cornellmaple.com and www.nysmaple.com as it becomes available.



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GROWTH RATES OF TREES TAPPED WITH HIGH-YIELD SAP COLLECTION PRACTICES - ARE CONSERVATIVE TAPPING GUIDELINES SUSTAINABLE?

Abby van den Berg, Timothy Perkins, Mark Isselhardt, and Timothy Wilmot

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

Each year, tapping a tree for sap collection permanently removes a small portion of wood where the spout is inserted. The tree's response to the wound also results in a column of wood extending above and below the taphole that remains permanently nonconductive to water and thus unavailable for future sap collection. Sap collection also removes a portion of the tree's carbohydrate (sugar) reserves, which are important for supporting the tree's growth and health. However, stem growth also adds new conductive wood to the outside of the tree each year, and photosynthesis during the growing season replenishes carbohydrate reserves.

For annual maple sap collection to be sustainable, the volume of nonconductive wood generated by tapping shouldn't exceed the volume of conductive wood that can be added by annual diameter growth. Also, the portion of sugar reserves extracted should not be large enough to reduce growth rates and hinder the replenishment of conductive wood. Tapping guidelines are a set of best practices aimed at ensuring these conditions are met, and that tree health is not compromised as a result of sap extraction.

Existing tapping guidelines were originally developed when collecting sap in buckets under gravity conditions was the predominant practice. They were also aimed mainly at mitigating the impacts of the wound caused by tapping, and did not account for the effects of removing tree carbohydrate reserves. Since that time, better vacuum pumps, improved tubing system materials and design, and tubing/spout replacement and sanitation strategies have led to significant increases in the amount of sap collected from tapholes. For example, the quantity of sap that can be collected each year from an individual tree using bucket collection is approximately 0.2 gallons of syrup equivalent, while the yield achievable using a system which incorporates high levels of vacuum and current equipment and practices is between 0.4 and 0.6 gallons. For these reasons, it is essential to determine whether existing tapping guidelines are appropriate to use with these current, "high-yield" sap collection practices which remove a much greater amount of a tree's sap.

METHODS

The overall objective of this work was to determine whether existing

Conservative Tapping Guidelines (Chapeskie et al. 2006) are appropriate and likely to result in sustainable outcomes when used with sap collection practices that result in higher sap yields. To accomplish this objective, three general questions needed to be answered:

- 1. What are the diameter growth rates of trees tapped with high-yield sap collection practices?
- 2. What are the minimum growth rates required for tapping to be sustainable when following Conservative Tapping Guidelines?
- 3. Are the growth rates of trees tapped with high-yield practices generally greater than these minimum rates?

Growth rates of trees tapped with high-yield sap collection practices

Research was first conducted to determine the diameter growth rates of trees tapped with high-yield sap collection practices. Eighteen cooperating maple production operations throughout Vermont that had used high-yield collection practices for at least the previous 5 years were identified. "High-yield" operations were defined as those that used vacuum levels ≥20"Hg and that had production yields of ≥0.4 gallons of syrup equivalent/tap.¹ Operations were selected to generally represent the typical range of stands tapped for maple production in Vermont; the site quality (evaluated by site characteristics and indicator plants) was considered "good" to "excellent" for sugar maple growth.

At each operation, a single stand with uniform site characteristics (including site quality, elevation, aspect, and basal area) and site history (including past management activities and occurrences of weather events, insects, and disease) was identified. Only stands that had not been thinned in at least the previous 10 years were selected. Stands with extensive histories of stress or large-scale disturbances (such as multiple years of insect outbreaks) were avoided.

Within each stand, healthy, codominant or dominant trees tapped annually with a single tap for at least the past 10 years were selected. Optimally, 7-10 trees from each of 6 size classes (8-9.9, 10-11.9, 12-13.9, 14-15.9, 16-17.9, and 18-19.9" diameter at breast height, DBH) were selected in each stand. This range was chosen to represent the sizes of trees maple producers are currently tapping with 1 tap per tree annually.² Care was taken to ensure each tree was selected from an area with conditions representative of the overall stand. All selected trees met the basic criteria established for tapping under current best practices for maple syrup production (Chapeskie et al. 2006).

In late-summer and autumn 2010, increment cores were collected from the

¹Only practices over the previous five years were considered, as the technology (vacuum pumps, spouts, etc.) necessary to produce very high sap yields became widely available between seven and ten years ago.

²The analyses in this report only examine the impact of a single tap per tree annually. Current Conservative Tapping Guidelines specify a minimum tree diameter of 12 inches for tapping (Chapeskie et al. 2006), although 10 inches is also generally considered acceptable. Smaller trees were included in the study as some producers report tapping trees less than 10 inches dbh.

north and south sides of each selected tree at each operation. Cores 6-8 cm in length were collected using a 5-mm diameter increment borer approximately 0.75 m from the ground, in order to avoid areas of the trunk affected by previous tapping. Diameters at breast height and at the height of core collection were recorded for subsequent calculations. A total of 1,076 cores from 538 trees were collected.³

After collection, cores were mounted in wooden blocks and prepared for analysis by sanding to enhance the visibility of annual rings. The widths of each core's annual rings were measured to the nearest 0.001mm using a digital micrometer linked to a measuring sledge. These data were used to calculate the average annual basal area increment (BAI) over the previous 5 years (2005-2009) for each core. (Basal area increment is the area of new wood added each year at breast height, and is a standard way to report and analyze the radial growth rates of trees.)

Basal area increments of each core (north and south) were used to calculate the mean BAI for each tree. These data were then used to calculate the mean BAI of trees in each diameter class at each site; from these data, the mean BAI's of trees in each diameter class across all sites were calculated to express the overall average annual growth rates of trees in each diameter class.

Minimum growth rates required under Conservative Tapping Guidelines

For annual sap collection to be sustainable, growth rates must be sufficient so that the amount of nonconductive wood generated by tapping is replaced annually by diameter growth, and thus that the amount of conductive wood in the tapping zone of a tree remains very high over time. For this study, sustainability was defined as maintaining a proportion of conductive wood in the tapping zone ≥90% for at least 100 years. This equates to a probability of hitting white, conductive wood when tapping in 9 out of every 10 trees, and was chosen after consultation with producers and maple extension personnel.

Research was conducted to determine the minimum growth rates required for tapping to be sustainable when using the Conservative Tapping Guidelines outlined in the 2006 North American Maple Syrup Producers Manual (Chapeskie et al. 2006). To do this, a model was first developed that estimates the amount of conductive and nonconductive wood in the tapping zone of a tree over time.⁴ Values for model parameters were then set to match those of

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³Cores from an additional 259 trees that were outside this diameter range, and/or that had suppressed or intermediate canopy position were also collected and analyzed. Data from these trees were not included in this report, but are being used in more extensive calculations for formal tapping guideline revision.

⁴Details of the Tapping Zone Model development and calculations have been described elsewhere (van den Berg 2012). An interactive version of the Tapping Zone Model that enables users to assess the sustainability of tapping practices is available to download from the UVM-PMRC website. A technical report describing its development and use is also available to download (van den Berg and Perkins 2013), and will be published in a forthcoming issue of The Maple Syrup Digest.

the Conservative Tapping Guidelines. For tapping with vacuum sap collection, these guidelines specify a minimum tree diameter of 12" for a single tap, a minimum dropline length of 30", a tapping depth of between 1-2" (1.5", the middle of this range, was used in model analyses), and a spout size of 5/16"-diameter. For each tree diameter class, the growth rates used in the model calculations were then adjusted to determine the minimum BAI required so that the proportion of conductive wood within the tapping zone would not fall below 90% over 100 years of annual tapping. These minimum rates were then compared to the growth rates of the trees sampled in the research, to see if the average growth rates of trees tapped with high-yield practices generally exceeded the minimum rates required for tapping to be sustainable.

RESULTS AND DISCUSSION

The average annual basal area increments of trees in 6 DBH classes tapped using high-yield sap collection practices are presented in Table 1. These values represent the average annual growth rates over a 5-year period of healthy, dominant or co-dominant sugar maple trees from 18 stands representing a range of stands tapped for maple production in Vermont. Trees had been tapped using high-yield sap collection practices for at least the previous 5 years using only 1 tap per tree annually.

Table 1. Mean annual radial growth rates (basal area increment, ± standard error of the mean) from 2005-2009 for healthy, dominant or co-dominant sugar maple trees tapped with high-yield sap collection practices from 18 stands in Vermont representative of typical stands tapped for maple syrup production. n = the number of stands.*

DBH class (in.)	n	BAI (in²)
8-10	7	1.4 ± 0.3
10-12	16	1.8 ± 0.2
12-14	18	2.3 ± 0.3
14-16	17	2.7 ± 0.2
16-18	17	2.9 ± 0.2
18-20	15	3.3 ± 0.3

^{*} The data for each diameter class were averaged by stand, however these means are comprised of data from 538 individual trees: 8-10" = 28 trees; 10-12 = 85; 12-14 = 135; 14-16 = 130; 16-18 = 98; 18-20 = 62.

In general, BAI increased with increasing diameter class, and rates were generally within ranges published for sugar maple in other studies (Long et al. 2009, Long et al. 2011). It is important to note that the trees included in this study were healthy, dominant or codominant trees selected to represent those typically tapped for maple syrup production under current best practices (Chapeskie et al. 2006), and these growth rates should not be extrapolated

beyond trees tapped with high-yield practices which meet these criteria. These growth rates should also not be considered reflective of trees that are growing on poor quality sites, that have suppressed or intermediate canopy position, or that are otherwise stressed or unhealthy due to disease or other factors. Indeed, trees with suppressed and intermediate canopy positions sampled in this research had substantially lower growth rates (data not shown).

To be sustainable, the growth rates of tapped trees must be sufficient so that the amount of nonconductive wood generated by tapping is replaced annually by diameter growth, and thus that the amount of conductive wood in the tapping zone of a tree remains very high over time. For each DBH class studied, Table 2 shows the minimum growth rates required for tapping trees to be sustainable when following Conservative Tapping Guidelines (Chapeskie et al. 2006) that were determined using the Tapping Zone Model. The average growth rates of the trees sampled in this study (Table 1) typically exceeded these minimum rates (Table 2). This suggests that, in general, for healthy trees that have dominant or codominant canopy position and are growing on good quality sites, current Conservative Tapping Guidelines are generally appropriate to use when tapping with high-yield sap collection practices. The limits and practical application of this conclusion are discussed in greater detail below.

Table 2. Minimum annual growth rates (basal area increment) required for healthy, dominant or co-dominant sugar maple trees growing on good quality sites for annual sap collection to be sustainable in the long-term using current, conservative tapping guidelines (Tapping Depth = 1.5", Dropline Length = 30", Spout Size = 5/16"). Sustainability is defined as a proportion of conductive wood within the tapping zone no less than 90% for at least 100 years.

DBH class (in.)	Minimum BAI (in²)
8-10	1.1
10-12	1.1
12-14	1.1
14-16	1.2
16-18	1.5
18-20	1.8

It is important to note that the trees sampled in this study had been tapped with high-yield practices for a relatively short period of time, <10 years, and thus the growth rates observed might not reflect those of trees tapped with these practices over a longer period of time. A study at UVM-PMRC has been initiated to address the question of whether there are any potential long-term effects of high-yield sap collection practices on tree growth rates.

GENERAL RECOMMENDATIONS

This research was 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. Until the final guidelines are available in the new Producers Manual, we can make the following general recommendations based on the results of the present study:

The results of this study indicate that for healthy trees that have dominant or codominant canopy position and are growing on good quality sites, current Conservative Tapping Guidelines are generally appropriate to use when tapping with high-yield sap collection practices. It is important to note that this recommendation applies only to healthy trees with dominant or codominant canopy position growing on sites that are generally of good quality for sugar maple growth, and only when all best practices specified in the tapping guidelines are followed (Chapeskie et al. 2006). The complete description of best tapping practices outlined in the Manual should be consulted, but they include these basic guidelines:

- Minimum tree diameter (at breast height) = 12 inches
- Minimum dropline length = 30 inches⁵
- Maximum tapping depth = 1.5 inches6
- Spout Size = 5/16 or 19/64 inches

The recommendations based on this research do not apply to trees that have suppressed or intermediate canopy position, or those that are growing

⁵The length of droplines strongly influences the total area of the trunk available to tap, so shorter droplines can rapidly result in nonconductive wood making up a large proportion of the tapping zone. 30" should be considered a minimum length, and longer droplines, ~36", are recommended. Also, if your practices include annual or periodic spout replacement, remember to factor this in when making droplines - a few years of cutting spouts off droplines for replacement can quickly turn 30" droplines into 20" droplines, and greatly reduce the potential sustainability of tapping practices.

^{61.5&}quot; is the middle of the tapping depth range specified by the guidelines. For very healthy trees with good growth rates, it may be acceptable to tap to a depth of 2". (UVM Maple Extension Specialist Tim Wilmot is currently conducting a study to determine the tapping depth which optimizes sap yield while considering the damage generated by the taphole, and these recommendations will be updated as needed upon the conclusion of that research. More information about tapping depth can be found in the following article: http://www.uvm.edu/~pmrc/wilmot_deep.pdf.

on poor quality sites. They are also not applicable to trees that are slow-growing, less healthy, or show signs of stress or disease (poor crown condition, smaller or fewer leaves than normal, slow-healing wounds, major trunk wounds, branch dieback, etc). Tapping practices should be modified if any of these conditions is present. Caution should also be used in stands that are very dense, as even healthy trees in dense stands can have very slow rates of diameter growth.⁷

Though the recommendations outlined are generally applicable to the types of trees and stands indicated, it is important to remember that the only way to explicitly determine whether tapping following these guidelines will be appropriate for a particular tree is to determine its growth rate. County or consulting foresters can provide assistance with assessing the growth rates of trees.

SMALLER TREES

Some tapping guidelines specify that trees smaller than 12" in diameter can be tapped. For example, the "Traditional" tapping guidelines outlined in the Manual specify 10" as a minimum diameter (Chapeskie et al. 2006), and the Vermont organic guidelines specify 9" as a minimum (NOFA-VT 2012). Results from this study indicate that tapping trees in the 10-12" size class will generally be sustainable, as long as the criteria outlined above are met and followed (canopy position, health, site quality, tapping practices, etc.).

Trees smaller than 10" dbh should be tapped cautiously - trees this small rapidly accumulate large amounts of nonconductive wood in the tapping zone (van den Berg and Perkins 2013), and sap collection removes a much greater proportion of their carbohydrate reserves than in larger trees. Also, trees in this dbh range often have suppressed or intermediate canopy positions. These trees are likely to have much slower growth rates, and will thus accumulate nonconductive wood even more rapidly. Optimally, growth rates of small trees should be determined before tapping, and should exceed a basal area increment of 1.1 in²/yr. For more information about tree diameter growth, please see the following article: http://www.uvm.edu/~pmrc/wilmot_diameter.pdf.

ADDING A SECOND TAP

The Conservative Tapping Guidelines specify that a second tap can be added in trees greater than 18" in diameter. This is likely an acceptable practice for trees tapped with high-yield collection practices, however caution should be used when deciding which trees will receive a second tap. This research examined only the growth rates of trees that were tapped with a single tap, and results from trials with the model suggest that putting a second tap in less vigorously growing trees can result in a proportion of damaged wood in the tapping zone greater than 10% after only a few years of tapping.

⁷Information on evaluating the site quality of stands can be found in the North American Maple Producers Manual, and in the following article: http://www.uvm.edu/~pmrc/fertilization_brochure.pdf.

For this reason, we recommend putting a second tap only in very healthy trees with excellent growth rates. If you begin hitting discolored wood (brown, non-white) more frequently after adding a second tap, you should consider reducing tapping intensity.

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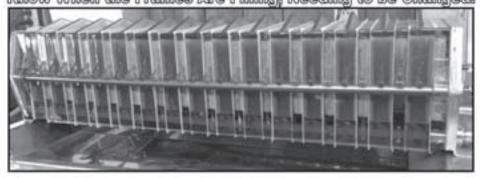


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2013-2014 New York Calendar of Upcoming Schools and Workshops

December 12 - Chenango County Beginner Maple Workshop, Contact: Kenneth A. Smith, Cornell Cooperative Extension of Chenango Co., 99 North Main Street, Norwich, NY 13815, (607) 334-5841 ext. 19, kas294@cornell.edu

December 14 - Onondaga County Beginner Maple Workshop, **Contact:** Kristina Ferrare, Cornell Cooperative Extension of Onondaga County, The Atrium, 2 Clinton Square, Syracuse, NY 13202, 315-424-9485 ext 231

January 3-4 - New York State Maple Conference, Verona NY, Contact: Keith Schiebel; kschiebel@vvsschools.org or go to cornellmaple.com

January 11 - Western NY Maple School, Contact: Deb Welch, Cornell Cooperative Extension of Wyoming County, 401 North Main Street, Warsaw NY 14569; 585-786-2251; djw275@cornell.edu

January 16 - Maple Production for the Beginner, Ontario County, Contact: Russell Welser, Cornell Cooperative Extension Ontario County, 480 North Main Street, Canandaigua, NY 14424, Phone: 585-394-3977, Fax: 585-394-0377, e-mail rw43@comell.edu

January 17 - Lewis County Maple Production for the Beginner,

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

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

January 25 - Maple Expo- St. Lawrence County, Contact: Cornell Cooperative Extension, 1894 State Highway 68, Canton, NY 13617-1477; 315-379-9192

January 28 - Maple Production for the Growing Maple Operation, Ontario County, Contact: Russell Welser, Cornell Cooperative Extension Ontario County, 480 North Main Street, Canandaigua, NY 14424, Phone: 585-394-3977, Fax: 585-394-0377, e-mail rw43@comell.edu

February 1 - Franklin County Maple School, Contact: Richard L. Gast, Cornell Cooperative Extension of Franklin County, 355 West Main St. - Suite 150, Malone, NY 12953, 518-483-7403, rlg24@cornell.edu

February 8 - Oswego County Maple School, Contact: JJ Schell, Cornell Cooperative Extension of Oswego County, 3288 Main St., Mexico, NY 13114-3499; 315-963-7286; jjs69@cornell.edu

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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

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

NEW YORK STATE MAPLE TOUR

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