Maple Syrup Digest

VOL. 23A, NO. 2 JUNE 2011

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MAPLE SYRUP DIGEST

Official publication of the

North American Maple Syrup Council www.northamericanmaple.org

Published and Edited by:

ROY S. HUTCHINSON • P.O. BOX 240, CANTERBURY, NH 03224

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

Published four times a year (Feb., June, Oct., Dec.)

Postage paid at: Canterbury, NH 03224

NORTH AMERICAN MAPLE SYRUP COUNCIL DIRECTORY OF OFFICERS

DIGEST ADVERTISING RATES

Full Page	276.00
1/2 Page Vert. or Horz.	155.00
Column Inch	21.75
Classified	80c per word

COPY DEADLINE: First of the month preceding date of issue

SUBSCRIPTION RATES

United States	1 year - $6.00
Canada, **US funds**	1 year - $8.00

COVER: Carl Vogt and Earl Parker

GREETINGS FROM YOUR PRESIDENT

As I write this message the maple season for nearly all of us whether we live north or south of the border is over and from the reports I've been hearing so far the supply looks pretty good for most all areas. For those of us here in the US we'll know better once the NASS report (which I hope you all filled out their survey and mailed back in) comes out in early June but from what I'm being told the 2011 season may have produced a record crop for the United States.

All the expansion and upgrading we've seen happening the past couple of years is now starting to show. Several weeks ago I was being told it looked like much of Quebec and northern Maine may have a very poor year but I believe the favorable weather during the last of April may have helped them pull out an average crop as well. Many of us here in Vermont thought because of the deep snow cover early in the season it may not be a good one because that's what normally happens with these types of conditions but it proved to be just the opposite for most of us this spring. This may end-up being one of Vermont's largest maple syrup crops in the past seventy years and other states and provinces may be able to also make that same claim.

But out of all of this the best thing I'm seeing is that the bulk and retail prices for maple syrup are holding strong and the demand for our product is also growing which should mean a good future for our industry.

The IMSI and NAMSC joined together and drafted a letter which was sent to Pinnacle Food Inc. asking them to please consider not selling anymore blended or artificial syrups in a traditional looking jug such as the one they are using for their new Log Cabin syrup which contains 4% pure maple syrup. We also asked them to join with us and help encourage retailers to not display blended or artificial syrups in the same space as pure maple syrup. Wouldn't it be great if companies like this would start promoting more pure maple syrup now that we have discovered the new nutritional values and potential health benefits? We also drafted a letter which was sent to many of the major retailers in the US and Canada encouraging them to not display blended or artificial sweeteners in the same location as pure maple syrup. Hopefully this will help sell more pure maple syrup in the future and make consumers aware of the differences between the two products.

I'd also like to thank all of the people, organizations and companies that made a donation to the Richard G. Haas Memorial Fund which was developed in honor of the late Richard "Dick" Haas. If you or anyone you know would like to make a donation to this fund please send it to the Richard G. Haas Memorial Fund in care of Joe Polak, W1887 Robinson Drive, Merrill, WI 54452.

Thank you and have a nice summer!

Rick Marsh

IMSI NEWS

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

The IMSI's Board of Directors held their quarterly meeting in Burlington, Vermont in early February and the meeting was very well attended. At this meeting the IMSI representative of the Federation of Quebec Maple Syrup Producers(FQMP) reported negotiated bulk syrup rates with their syrup buyers for 2011.

Negotiated Bulk Syrup Rates for 2011(Federation of Quebec Maple Syrup Producers)

AA & A - $2.81 per pound
B - $2.79 per pound
C - $2.72 per pound
D - $2.45 per pound
Commercial - $2.22 per pound

This represents an increase of $0.04 per pound across the Board from 2010.

There is a $0.15 per pound premium for syrup which is certified organic and a $0.02 per pound premium for syrup packed in stainless steel drums.

The 2011 maple syrup production season is now behind us and preliminary reports suggest that both yields and quality of maple syrup were generally good in both Canada and the United States. In some of the more northern areas, the production season was extended with intermittent periods of little or no sap flow due cold weather. Based on preliminary reports, it is anticipated that there will be a sufficient supply of syrup to meet demand in the international marketplace in 2011.

IMSI Financial Review

In addition to the regular IMSI quarterly financial statements, IMSI's Executive Director and Treasurer completed a review of IMSI's revenues (Member Dues) and Expenditures for the period 2006-2010. Over the past few years, IMSI's investments in research and important projects such as adulteration monitoring, standardized grades initiative and others have been very significant. While IMSI membership has increased in recent years, total dues revenues are not keeping pace with expenditures and it was clear that action must be taken in 2011 to enhance revenues significantly so that project commitments can be met in 2011 and beyond. Projects that involve a financial commitment on behalf of the IMSI are Standard International Maple Grades, Nutritional and Health Benefits Information, Adulteration Monitoring, Sulfite Research Evaluation and Maple Grading School. Other important project initiatives will emerge in the future but emphasis will be placed on supporting projects which are already underway.

After careful consideration of a number of options to fund raise in 2011, IMSI's Executive Committee recommended the following option to the Board.

That all IMSI members would be asked to consider a contribution to a new IMSI project fund at least equal to their current annual membership dues and that in addition, IMSI's Executive Director with assistance from board members explore opportunities to fund raise from government and other sources. IMSI mem-

bership dues would remain the same for 2011 but may be increased in 2012.

Since the IMSI's Board of Directors meeting, work has proceeded on addressing a number of issues and advancing ongoing IMSI projects.

Misleading Representation of Competing Sweetener and other Food Products in Retail Markets

The IMSI Board of Directors is very concerned about the use of a traditional maple syrup container by Pinnacle Foods for a blended sweetener product they carry labeled as containing 4% pure maple syrup. This product is often placed in close proximity to pure maple syrup on retail shelves. In April 2011, the IMSI and the NAMSC sent a letter to Pinnacle Foods outlining their concerns and requesting that action be taken to resolve the container use issue. A response has not yet been received from Pinnacle Foods but is expected in May. There are also concerns regarding potentially misleading labeling of this product. Pinnacle Foods has recently addressed the labeling concern in part due to actions of the Vermont Agency of Agriculture, Food and Markets.

IMSI members have also referred other examples of food products labeled as containing maple but without maple or pure maple syrup in the product ingredient listing. The Vermont Agency of Agriculture, Food and Markets is reviewing other products for possible label misrepresentation. These include McDonalds Fruit and Maple Oatmeal and Kellogg's Eggo Cereal.

The IMSI and the NAMSC have also written a letter to retailers regarding the issue of potentially misleading product presentation and labeling of competing sweetener products and providing some recommendations to alleviate the problem. This letter has been distributed to retailers of pure maple syrup and competing sweeteners in both Canada and the United States.

Nutritional and Health Benefits of Pure Maple Syrup Study

A Committee of the IMSI lead by Ray Bonenberg, IMSI Director from Ontario has been working to consolidate scientific and other related information on the nutritional and health benefits of pure maple syrup. This work includes the finalization of a positioning statement for use of the information by Institute members and the broader maple community and the preparation of a poster and rack-card highlighting important information. Other promotion materials will no doubt be developed by the IMSI's members, individual maple producers and others to suit their needs. The intent of this initiative is to identify information backed by research and to more broadly disseminate it within the international maple community.

Standard International Maple Grades Initiative

IMSI's Executive Director and Chair of the IMSI's Maple Grades Committee and committee members continue to work on implementation of IMSI's plan designed to lead to full implementation of standard grades and nomenclature.

Since October 2009, the IMSI has emphasized efforts to raise aware-

ness regarding proposed changes to international maple grades, particularly among maple syrup producer groups. A few suggestions for minor tweaking of the proposal have been received and these will be considered by IMSI's Board of Directors before the IMSI's Standard Grading proposal is formally submitted to regulatory agencies in Canada and the United States. This awareness activity is seen as very important and will continue.

The IMSI will be collaborating with selected packers and maple producers to test drive the standard grading proposal in advance of full implementation. The purpose of this activity is to obtain suggestions from maple syrup producers and packers which will help ensure a smooth transition to standard grades when regulatory approvals are obtained. The IMSI issued a Call for Expressions of Interest in this activity in February 2011 and is currently working on firming up details. Centre Acer in Quebec has agreed to provide colour classification kits and sets of pre-classified syrups sufficient in number to test drive the new system. Centre Acer is also working with IMSI in the development of minimum standards for the new colour classification kits, as a basis for commercialization of the kits.

Work is also underway to finalize the IMSI's regulatory submission document in support of the finalized grades proposal.

IMSI Golden Maple Leaf and Lynn Reynolds Awards

The IMSI continues to sponsor two special recognition annual awards.

This is the fourth year that IMSI's Golden Maple Leaf Award is being offered to members. The award is designed to recognize excellence in maple innovation. Over the past three years, a focused theme was identified for the award (ie. marketing; research; education). In 2011, the award is open to any specialized area within the maple syrup industry (including: awareness/education; research; equipment development; promotion and marketing, etc.) It will be possible that more than one winner of this award will be selected in 2011, depending on the caliber of nominations.

IMSI members may also submit nominations for the Lynn Reynolds Annual Memorial Leadership Award that recognize individuals for excellent contributions to the international maple syrup industry.

Members of the IMSI are encouraged to submit nominations for either of these awards to the IMSI's Executive Director by Monday August 15th 2011. Guidelines for the two awards can be obtained from Dave Chapeskie. Recipients of the two IMSI sponsored awards will be announced at the NAMSC/IMSI Annual meeting banquet in Frankenmuth, Michigan in October.

IMSI Maple Grading School

At the IMSI's Board meeting in February, Kathy Hopkins provided a report on the most recent IMSI sponsored Grading School which was held in Stratford, Ontario in October 2010. Feedback from school participants was excellent. Kathy mentioned that the school helped raise the awareness of participants regarding the need for greater standardization of maple grades and

nomenclature and that course participants were supportive of the move to standard grades. Kathy advised the Board that the University of Maine Cooperative Extension had designed and launched a website to help promote IMSI's Grading School. The website address is: http://extension.umaine.edu/maple-grading-school/. An IMSI sponsored Grading School is to be held on Wednesday - Thursday, December 7-8, 2011 at the UVM Extension Office, Berlin, Vermont.

Anyone interested in participating in the school should contact Kathy Hopkins at: khopkins@maine.edu.Other Maple Grading Schools may be announced periodically.

Directive for Future Annual Meetings of NAMSC and IMSI

The IMSI has worked cooperatively with representatives of the North American Maple Syrup Council to finalize a Directive and associated guidelines to aid in the planning of future annual meetings of NAMSC/IMSI. A provision of the directive is that IMSI's October business meetings are to be held within a two day period. The directive document has been distributed to NAMSC delegates/IMSI members and should be helpful in planning the annual meetings. The directive has not yet been formally endorsed by IMSI's Board of Directors but will be considered for adoption at their spring Board of Directors meeting. The NAMSC will also arrange for formal adoption of the directive.

Future IMSI Meetings

The IMSI's spring season Board of Directors meeting will be held at the American Maple Museum in Croghan, New York on Friday May 20th and their summer Board meeting will be held at the Ramada Plaza Crystal Plaza and Convention Centre in Moncton, New Brunswick on Wednesday August 24th. Further details can be obtained from IMSI's Executive Director.

Dates have not yet been confirmed for IMSI's Board of Directors and Annual meeting in Frankenmuth, Michigan in October.

NAMSC / IMSI

Future Convention Dates and Sites

2011 • October 23-26 Bavarian Inn, Frankenmuth, Michigan
2012 • October 21-24 Mystic Marriott Hotel & Spa, Mystic, Connecticut
2013 • New Brunswick
2014 • Nova Scotia
2015 • Pennsylvania
2016 • Vermont
2017 • Quebec
2018 • New Hampshire
2019 • Minnesota
2020 • Wisconsin
2021 • New York
2022 • Massachusetts

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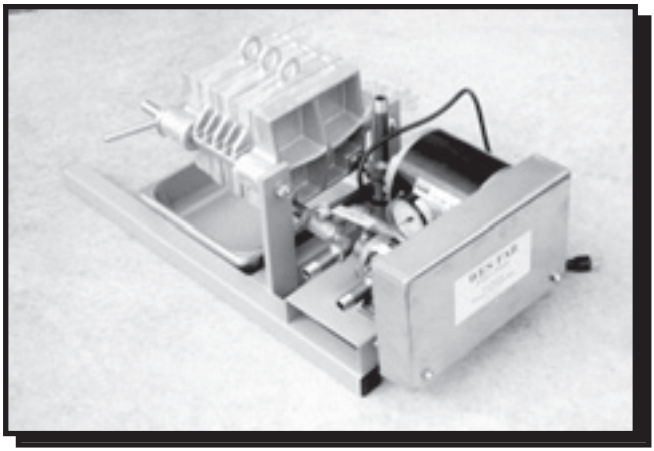

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Cumberland County Maple Producer Honoured

At the recent Maple Producers' Association of Nova Scotia annual general meeting, Avard and Jean Bentley of Westchester Station were recognized for their contributions to the maple industry.

Mr. and Mrs. Bentley's involvement with the maple industry spans more than three decades. Their sugar camp was built on Westchester Mountain in 1978, pipeline was installed in 1980 and the first boil took place in the spring of 1981. Throughout the years, the family run maple business has prospered and grown to be one of Nova Scotia's largest operations. Taps have increased from the original 1,500 and sap was collected and boiled from 35,000 taps in 2010.

The Bentleys have been very active in the Maple Producers Association of Nova Scotia (MPANS) having served in a variety of positions. Avard has served on the MPANS board of directors several times, and has been Vice-President and President. Jean was secretary/treasurer for many years.

Avard attended the first ever North American Maple Syrup Council meeting in 1986 and has been a director of NAMSC ever since. The annual general meetings of North American Maple Syrup Council and International Maple Syrup Institute and the associated technical sessions have been held in Nova Scotia on two occasions, 1993 and 2003. Avard and Jean were very active in the planning on each occasion, with Avard serving as Co-Chair of both organizing committees. The NAMSC/IMSI annual conference will be held in Nova Scotia again in 2014 and Avard is once again on the organizing committee. In 2001, Avard was inducted into the American Maple Hall of Fame in Croghan, New York.

ESTIMATING TWIG STARCH CONTENT IN SUGAR MAPLE (ACER SACCHARUM): EVALUATION OF THE VISUAL TECHNIQUE

Mark Isselhardt,
Research Technician
University of Vermont,
Proctor Maple Research Center,
Underhill Center, VT 05490

INTRODUCTION

Nonstructural carbohydrate reserves stored by plants are sometimes described in terms of personal banking. The reserves are added when production from photosynthesis exceeds the demand from immediate living and growth (similar to depositing money in the bank) and reserves are consumed when the reverse is true (like a withdrawal) (Chapin 1990). The analogy can be extended further by saying that soluble sugars (predominately sucrose) are like a checking account (more easily spent) whereas water-insoluble starch is like a savings account. The nonstructural carbohydrate balance of trees has thus been used as an indication of overall health of trees (Wargo 1972). It is also used to assess a trees ability to withstand stress. During the dormant season, the reserves are allocated to several essential processes (such as cold season acclimation, cellular respiration and defense) which allow trees to survive in cold climates. Total nonstructural carbohydrates (TNC), which includes total starch + total sugar, is used as a measure of the reserve material available to plants. Starch is the dominant reserve carbohydrate in sugar maple (Acer saccharum) (Jones & Bradlee 1933). Starch is stored in vascular rays throughout the xylem (Gregory H. 1981). Starch can represent 50-80% of the total nonstructural carbohydrate reserves in sugar maple (Isselhardt, unpublished data). Trees with depleted starch reserves are more prone to die back and decline from various biotic and abiotic stressors (Gregory R. A. 1986).

Root starch has been used to estimate tree vigor and health with some success (Gregory 1986, Renaud & Mauffette 1991). Precise carbohydrate chemical analysis of wood tissue is a time consuming, expensive endeavor that requires significant investment in equipment and technical expertise. A relatively simple, low cost, visual technique was developed to give an estimation of the starch reserves in maple roots (Wargo P. 1975). This experiment used a simple iodine solution to stain root tissue from trees that had been defoliated by hand (as well as non-defoliated controls). Chemical carbohydrate analysis was used to quantify the starch concentrations in sugar maple root samples, and iodine stained root cross sections were sorted into four categories of starch concentration (depleted 0-1%, low 2-5%, medium 6-10% and high 12-25%) based on the intensity of staining. There was sufficient agreement with the chemically determined starch values to suggest the visual technique had promise and represented a technique that could be easily mastered by a wide range of professionals.

It has been noted that root sampling can be a laborious and inexact process (Perkins, personal communication). In a forested setting, determining the actual source of a given tree root can be challenging. Additionally, there is no clear delineation for where roots end and stems begin. Wong (2003) proposed the use of twigs in carbohydrate analysis. Twig sampling is easier, less damaging than root sampling and allows for collection of numerous samples and repeated measures on the same tree over successive years. In the present paper, a visual method of starch determination similar to that already used for roots has been undertaken for twigs. If successful, this method would simplify the process of assessing overall tree health and vigor in sugar maple trees.

METHODS

Study site

This experiment was performed at the University of Vermont, Proctor Maple Research Center, in Underhill Center, Vermont. The site was described in more detail in a previous study (Wilmot 1995). Generally the forest has low site quality. The terrain is hilly and at an approximate elevation of 1430', with a generally west-facing aspect and slopes of 10-15%. This site is an actively-managed sugarbush and sugar maple (Acer saccharum) is the dominant overstory species. Lesser amounts of red maple (Acer rubrum), white ash (Fraxinus americanum), American beech (Fagus granifolia) and yellow birch (Betula alliganiensis) are also present.

Sample collections

Twelve visually healthy sugar maple trees were selected from a group of trees actively tapped for maple syrup production. Mean diameter of the study trees was 7.7". Twigs were collected just prior to bud-break (April 6, 2010), from the upper 1/3 of the crown using a shotgun. Three separate twigs from the same general area of the crown were collected from 12 trees. Samples were immediately placed in a cooler with ice and transported to the lab.

Laboratory Procedures

Following the sample collection, twigs were placed in an ultra-low freezer (-93 degrees F) until chemical and visual analysis could be performed. Starch was determined chemically (Wong 2003). A 3-4 cm section was removed from the base of each twig. The bark, phloem and cambium were removed with a razor blade. The pith was removed with the aid of a cordless drill. The remaining sample of xylem tissue was submerged in a vial containing 5 ml of 80% ethanol, placed in a boiling water bath for 15 minutes and then evacuated at 24" Hg in a cold vacuum oven.

Samples were homogenized in a Brinkman Instruments Polytron™ and transferred to a 50 ml centrifuge tube. The ethanol soluble sugar fraction of the xylem tissue was extracted twice with 5 ml of 80% ethanol. The wood pellet was analyzed for starch concentration by an enzymatic method. The enzyme hydrolyzes the starch to glucose, which is then quantified colorimetrically with a spectrophotometer using a glucose standard curve. The residual wood tissue pellet was dried to uniform moisture and weighed. Starch concentration was

calculated in terms of milligrams/gram dry weight of wood and then converted to percent starch.

Cross sections of whole twigs were stained with iodine for visual analysis of starch. The sections were made to a uniform thickness of 25□ with a rotary microtome, placed on a glass slide, and saturated with a 15% iodine solution for five minutes, at which time the iodine was rinsed off with water and a cover slip placed on top. Mounted slides were observed and photographed at 10x magnification. Digital color images were captured for visual analysis.

RESULTS AND DISCUSSION

Chemical analysis

The range of mean starch values observed in sugar maple twigs collected from at the end of the dormant season was much lower than previously found in roots (Wargo 1975). Trees that were artificially defoliated in that experiment had root starch concentrations ranging from 0-30% on a dry weight basis. The twig samples in this study had a range in starch concentration from 1.1-8.9%. Wargo (1975) collected three subsamples for each of four trees and found little visual variation in root starch concentration. In contrast, the twig samples collected for this study showed a substantial amount of tree variability (Table 1).

The high variability within tree starch concentrations represents an impediment to using twig starch as a reliable measure of sugar maple nonstructural carbohydrate reserves. It is possible that the variation in observed starch concentration was a result of sampling error or subtle non-visual differences in spring-time twig phenology.

Table 1. Sugar maple twig starch concentration (% dry weight basis) and standard error for 12 sugar maple trees.

Tree #	Sub-samples	Starch Concentration (%dry wt.)	SE
1	3	3.5	0.68
2	3	6.4	0.37
3	3	3.8	0.78
4	3	1.7	0.32
5	3	5.7	0.33
6	3	3.3	0.14
7	3	4.3	0.24
8	3	2.2	0.40
9	3	5.7	1.40
10	3	6.4	1.00
11	3	6.1	0.99
12	3	4.1	0.54

Visual analysis

Wargo (1975) determined that stained root cross-sections could be placed in four general categories of starch concentration (depleted 0-1%, low 2-5%, medium 6-10% and high 12-25%). A similar set of twig starch concentration categories could not be easily made with stained twig sections. The pattern of increased staining intensity with starch concentration (Figure 1) was not as observed in twig sections. A pattern of increasing stain intensity with increased starch content can be seen in the first column of the root sections. The pattern is less clear but still present in the second column of the root sections. No similar pattern can be seen in the twig sections, despite a comparable, 10 fold increase in the starch content.

Visual analysis was undertaken in hopes of finding some identifiable

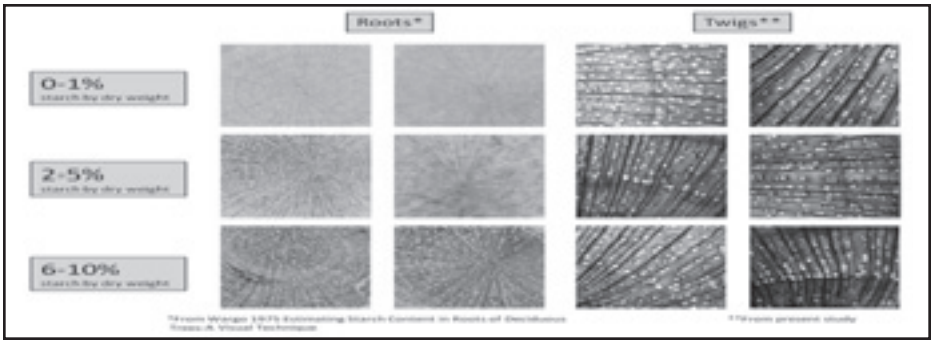

Figure 1. Visual comparison of iodine stained root and twig cross sections at three ranges of starch concentration (0-1%, 2-5% and 6-10%). Root section images are reprinted from (Wargo P. , 1975). Root sections are 7X and twig sections are 10X magnification.

source for the within tree variability in twig starch concentration. Figure 2 shows iodine stained cross sections from two sugar maple twigs used in the present study. The two twigs represent the lowest and highest starch concentrations recorded with chemical analysis in the present study. The twig on the right shows a fairly uniform distribution of xylem anatomical constituents (large vessel elements, darkly stained vascular rays and fibers). The twig section on the left has areas that are similar to the image on the right but it also includes a much greater collection of stained starch grains near the center of the twig. It appears that some starch is being stored in the area surrounding the pith as well as the radially oriented vascular rays. If not all the pith was removed in the sample preparation stage of the experiment (as was the case in the example in figure 2), the retained starch would have added to the overall twig starch concentration values and thus to the variability of twig starch concentration within trees. This would account for the highly variable starch concentration values but not for the failure to produce a discernable pattern of staining.

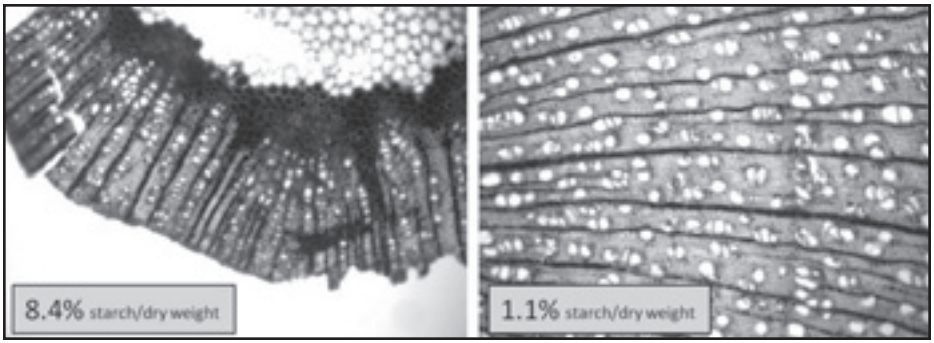

Figure 2 Cross-sections of twigs of sugar maple stained with iodine solution, showing maximum (image left) and minimum starch concentration (image right). Darkly stained vascular rays are present in both cross sections. The twig on the left appears to have starch storing amyloplasts around the pith lining as well.

Another possible explanation for the observed variation in twig starch concentrations is the timing of sample collection. Warm spring days in late March 2010 greatly accelerated the phenology of spring twig development. It is possible that subtle differences in twig development, concentration of vegetative vs. flower buds, or micro-site could have affected the starch concentrations. It appears that spring twig starch concentrations may be inherently too variable to be useful in assessing overall tree starch reserves. Perhaps sampling earlier in the year (January) would avoid the confounding factors of spring growth and warm temperatures. Additional work will be necessary to further investigate these sources of variability.

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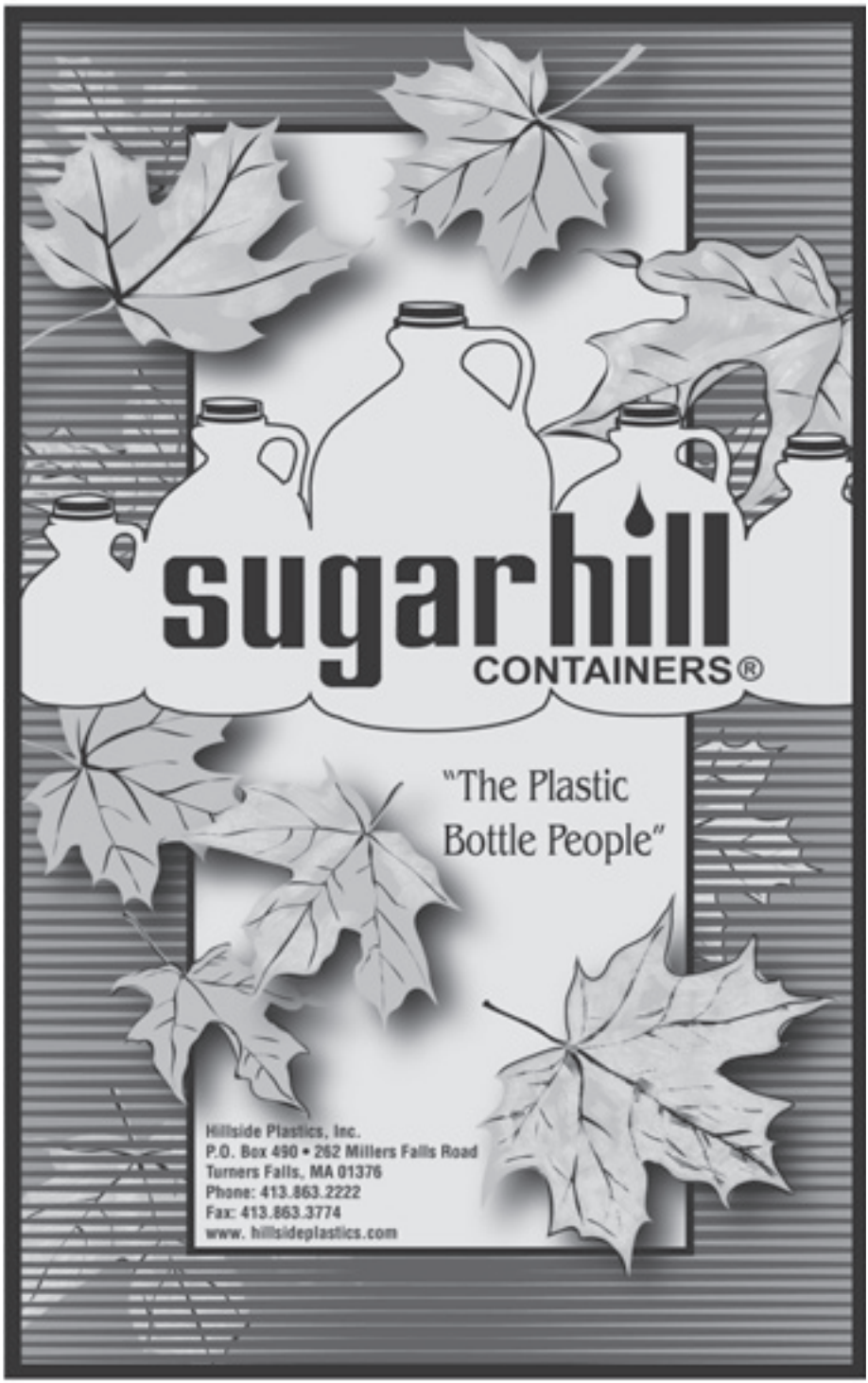
ACKNOWLEDGMENTS

This work was supported in part by the Chittenden County Sugarmakers Association and Mr. David Marvin of Johnson, Vermont. Thanks to Dr. Phil Lintilhac for help with twig sectioning and digital microscopy and Ms Paula Murakami and Dr. Paul Schaberg for assistance with carbohydrate analysis.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MICHIGAN 2011
MapleFest

October 23-26, 2011 in Frankenmuth, Michigan

The North American Maple Syrup Council
The International Maple Syrup Institute
and the Michigan Maple Syrup Association

Frankenmuth is a favorite Michigan community whose residents take great pride in preserving the German heritage of the area. Well-tended flowers and lush greenery abound in what many visitors describe as the most authentic Bavarian architecture to be found anywhere in the United States. Frankenmuth is also famous for its outstanding food, and Bronner's, the world's largest Christmas store. It's the size of 5 ½ football fields! Cheese and sausage factories, woolen mills, leather shops, fudge and candy kitchens, an art gallery and museums all combine with over 100 quaint village shops to make Frankenmuth the most visited spot in Michigan each year!

Our hotel and the site of our daily meetings and evening activities is the beautiful Bavarian Inn Lodge and Conference Center. Enjoy the indoor pool, gift shops, and welcoming, comfortable rooms.

During the week, look forward to:

• Networking with new and old friends who share a passion for maple.

• NAMSC/IMSI meetings on Monday and Tuesday with access to international leaders in the maple syrup industry, and the opportunity to hear about the issues they are addressing.

• Technical sessions on current research and topics of interest.

• Vendor displays and Research Exhibits highlighting what's new in maple syrup equipment and supplies.

• Maple Tours featuring local sugarhouses and a choice of some great local attractions: the GM Truck Assembly Plant, a commercial Wind Farm, the Octagon Barn and Agricultural Museum, a solid surface and quartz countertop fabricator (owned by one of our very own Michigan sugarmakers) and a close-up look at sugar beet harvesting.

• Participating in our Syrup/Confections Contest - bring your best syrup and specialty products for a friendly competition among all our states and provinces.

• Entering our MapleFest Photo Contest-put together your best shots for these categories: Maple Scenes and Visitors to the Sugar Bush , Maple People on the Job, Youth and Old-Timers In Maple Activities, Sugar House and/or Maple Products, and Creative Maple Photography.

(Continued on page 22)

Michigan 2011 MAPLEFEST

REGISTRATION FORM

October 23rd - 26th, 2010
Frankenmuth, Michigan

Name(s): _____

Address: _____

City, State/Province: _____ Postal/Zip Code: _____

Telephone: _____ Email: _____

REGISTRATION

		Cost	# People	Total
Full Registration		$ 125.00		
Includes: Meeting Registration				
Taste of Michigan Food & Entertainment (Sunday night)				
Breakfasts (Mon., Tues. & Wed.)				
Lunches (Mon. & Tues.)				
	Late Registration (Postmarked After Sept. 16)	$ 150.00		
One-Day Registration Only	Monday, October 24th	$ 50.00		
Includes: Meeting & Lunch	Tuesday, October 25th	$ 50.00		
	Late Registration (Postmarked After Sept. 16)	$ 65.00		

EXTRA ACTIVITIES

Monday, October 24th					
Companion Activities	Maple Papercraft--Hands-on!	$	10.00		
	Make your own German Strudel	$	6.00		
	Preztel Rolling	$	5.00		
Oktoberfest--German Meal & Polka Band		$	33.00		
Tuesday, October 25th (Dinner on your own)					
Companion Tour--Greenfield Village		$	75.00		
German Beer or Wine Tasting	Beer Tasting	$	8.00		
	Wine Tasting	$	6.00		
Wednesday, October 26th					
Maple Tour A (Sugarhouses, Wind Farm, Octagon Barn, Sugarbeet Factory)		$	35.00		
Maple Tour B (Sugarhouses, GM Truck Assembly Plant, Countertop Factory)		$	35.00		
MapleFest Banquet--World Famous Chicken Dinner & Entertainment		$	35.00		

Oktoberfest, Tours & Banquet MUST be registered for in advance **Total Enclosed**

Please make checks payable to: **Michigan Maple Syrup Association (MMSA)**

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Conference Rates: Std room $99.00, Suite $159 (mention Maple Syrup Conference, Acct. # 1134W5)

• Fun, hands-on companion sessions including Maple Paper Crafting (picture frames & note cards), Cooking with Heirloom Grains, German Strudel Making and Pretzel Rolling (bake & take).

• Companion tour Tues. of America's greatest history attraction: Greenfield Village & Henry Ford Museum (www.thehenryford.org)

• Savoring delicious foods at "A Taste of Michigan," our kick-off event on Sunday night.

• An "Oktoberfest" evening on Monday, complete with beer, brats and a polka band!

• Dinner on your own Tuesday evening at one of Frankenmuth's outstanding eateries (start out your evening with German Beer and Wine Tasting, if you'd like!)

• Our GRAND FINALE on Wednesday evening: the MAPLEFEST Banquet with awards, Research Fund silent auction and music.

Find a full schedule of events, activities, maple tours and rules for both contests on the MMSA website at www.mi-maplesyrup.com.

To receive information by e-mail (preferred), contact Jan Currey at currey@cablespeed.com. To have info sent by mail, call 517-223-3267.

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CDL, the reference in maple

MAPLE HALL OF FAME

On May 21, 2011, the Maple Hall of Fame in Croghan, New York inducted two new members.

CARL E. VOGT

Carl is a consulting forester who enjoys all aspects of forestry. His professional career has taken him from New York to Minnesota where he resides. He and his wife Sally own and manage wholesale and Choose and Cut Christmas tree farms, a small hobby maple syrup operation, and portable sawmill.

Carl attended the New York State College of Forestry (SUNY), Syracuse University and the University of Minnesota. He started his career in Minnesota as a District Forester for the Minnesota Conservation Department (DNR) and worked with private landowners in S.E. Minnesota. He had the opportunity to advise and assist landowners on a variety of topics from maple syrup to black walnut lumber production.

After working in the forestry area Carl developed a keen interest in natural resource education and was hired as a natural resource educator for the Minnesota Environmental Sciences Foundation. The non-profit foundation developed curricula for teachers and hosted an adjunct teacher training program with various colleges. Carl had a part in writing and developing materials in natural resource education. He was also in charge of a unit of the foundation which encouraged schools to develop outdoor learning centers focused on natural resources. The foundation was instrumental in helping over 300 public and private schools implement these plans in many parts of the U.S.

During this time period, Carl conducted numerous workshops and was very involved with the Minnesota Conservation Association (MACE), Minnesota Environmental Education Association (MEEA), Society of American Foresters (SAF) and other related organizations. In 1976 Carl left the foundation and pursued his dream of owning and managing his own business.

He always had an interest in the practical and applied side of his profession. He purchased a small tree farm and continued growing Christmas trees. Growing a few seedling developed into a mail order seedling business which at one time shipped thousands of seedlings throughout the U.S. With the purchase of a small wooded farm with maple trees the hobby maple operation took shape. Some of the storage sheds and maple shed were build from timber cut and sawed on the farm.

As the operation grew, part time help was employed to assist in all aspects of the business. He became very active in the Minnesota Maple Syrup Producers Association (MMSPA) the Minnesota Christmas Tree Growers Association (MCTGA) and other organizations. As part of the maple association (MMSPA) he served as Alternate and Delegate to the North American Maple Syrup Council (NAMSC) and served as president of the (MMSPA). He was very involved and had an opportunity to help in the planning and implementation of the NAMSC annual meeting held in Minnesota in 1976, 1987 and 2001. Carl also served as newsletter editor of Minnesota Maple news.

Complementing his consulting forestry job Carl was hired on a part time basis by the University of Minnesota Extension Service (MES). His part time job was to conduct programs in specialty crops such as maple syrup, Christmas trees, black walnut production, small woodlot management and other areas. He also was very active in 4-H, FFA, and youth group natural resources training and activities. He was asked to teach forestry courses for teachers and the annual Dendrology course for undergraduate students.

During this period, Carl was still very

active in a number of organizations and served as Secretary/Treasurer of the North American Maple Syrup Council. This opportunity led to the development of many long term friendships and provided the added benefit to learn about maple syrup production in other parts of the US and Canada. This information was brought back and utilized in teaching at many workshops conducted in the state.

Carl will retire from his part time job at the university this fall and plans to continue his consulting work and farm operations. He thinks he will be able to "catch up" and remake his "to do" list in his spare time, at least that's the plan. Carl and Sally plan to continue to travel to visit relatives and friends and see more of the country in the future.

EARL PARKER

Although Earl Parker has been active in the maple industry throughout his life, his darkest hours and greatest accomplishments came in January 1998, as the maple industry in the US and Canada was reeling from effects of the Ice Storm. Earl was able to turn disaster into triumph, with 100% tubing loss and 75% crown damage in his woods he was able to bring 3,000 taps back into production that sugaring year saying, “I have never missed a maple season, why start now.”

The 1998 maple season exemplified Earl’s commitment to his family and heritage, their maple operation, and the maple industry. The Parker farm began as a family farm in 1889. Earl spent his childhood working along side his parents and siblings; Anne, Clarence, Loren, Allen, and Carolyn, making maple syrup and tending the dairy. As the 3rd generation on the Parker Farm, Earl embraced his heritage, taking over the operation of the family farm in 1961, after the death of his father, Pearlie.

With Earl’s leadership the farm has grown from under 200 acres of land with 1,200 taps to 700 acres and 20,000 taps as Parker Family Maple Farm. Purchasing several small area farms, he was able to increase production and expand his customer base. Early in his career Earl realized that retail trends were changing, people no longer purchased a year’s supply of maple syrup in the spring. In 1970, he built a roadside sugarhouse, where the customer would not have to venture into the woods in their Sunday best to purchase products. HIs operation became a year-round, full-time occupation.

While growing his business, Earl became more involved in advancing the maple industry through research and advertising. He worked closely with Dr. Robert Morow and Lewis Staats of Cornell University, along with Miner Institute on some of the first modern tubing research. He has been a dealer for Leader Evaporator Co. for over 40 years. During this time he has encouraged and assisted many new producers in upstate New York. As a founding member and former president of the Northeastern NY Maple Producers Association, Earl helped to bring further awareness of the maple industry in northern New York. At the state level, Earl served as two-term president of the NY State Maple Association and several years as the representative to the IMSI. After the 1998 Ice Storm Earl worked with New York Governor George Pataki and Senator Ronald Stafford to emphasize the plight of the industry in New York. He served on a number of committees to secure funds for area producers to rebuild tubing structures and rehabilitate sugarbushes. He was the 2001 recipient of the Hubbell Award.

As Earl’s knowledge has grown since the 1960s, so has his family and business. Striving to continue an intimate farm to table approach Earl and his wife Pat, have educated countless school children, and families about the importance of maple, through open houses, tours,

and in-school visits. Earl's seasonal motto continues to be "Every weekend should be Maple Weekend." Thinking beyond the roadside stand Earl and Pat have developed a gift shop and year-round mail order business offering an increasing variety of maple products. In 2009, Parker Family Maple Farm became certified USDA organic, once again recognizing the ever-changing market. In 2010, Earl sold his dairy cows, choosing to further develop and diversify the maple business.

Today Parker Family Maple Farm serves as the nucleus of the Parker family, encouraging siblings, children, grandchildren, and cousins to take part in the maple experience. Earl can look upon the 5th and 5th generations of Parker maple producers with pride knowing that they are continuing his goals of striving for continued advancements and education in his business and the industry.

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CROP REPORTS FOR 2011

CONNECTICUT

By: J. Mark Harran

Connecticut's 2011 crop is best characterized as a "good season" based on a survey of a sample cross-section of CT sugar makers. All agreed it was definitely better than the last two years, which were really disappointing. There were exceptions on either side of a "good season,"but most reported that the quantity and quality were good. The season started out very slow due to unseasonably cold weather and heavy snow accumulations (3-4 feet on the level in my woods), which hampered tapping activities. Indeed, at the half way point, the season looked to some like it might be a replay of 2009 and 2010, but the last half of the season finished strong and made up for the slow start and then some.

INDIANA

By: Dave Hamilton

With only a small fraction of our producers surveyed here are the results. Most of our southern producers tappped the first week in February, with the central section around Valentine's Day and the northerners about President's Day. These are about normal tapping dates for the Hoosier state. The southern producers did not have a very good season as the temperatures for a good sap flow only existed for a few days. Most of those in south did not make any light syrup to speak of. In the central and northern parts of the state the sap flow was better than normal, with a few producers reporting a record year. Those in the central part of the state made very little light syrup, with the northern sections producing about the usual amount of light syrup. A few degrees in temperatures can make a big difference in the color.

Most producers throughout the state had a sugar content that was above 2% for most of the season, with a few producers reporting several collections at 3%. Moisture was not a problem this season in Indiana as we had snow and rain scattered throughout the entire state. It seems like lots of mud and getting stuck in the woods are necessary for a good season. Most of us had a very good season.

A more detailed report will be made by the Indiana Department of Natural Resources during the month of May.

MASSACHUSETTS

By: Winton Pitcoff

Massachusetts sugarmakers had an excellent year. Many of our 250+ members reported that it was their best season ever, and some said it was only slightly down from the bumper crop of 2008. All reported excellent flavor and high sugar content. Season lasted a full five weeks for those in high elevations, and only about a week shorter in the Valley.

PENNSYLVANIA

By: Wayne Clark

It depended where you were located in PA whether you had a great maple season or just an average one. Four of the five local associations reported having a very good to great year. Potter-Tioga in the north central mountains had an average year.

Northeast reported that it was the best season ever with a lot of nice syrup. They were able to bring the grade back after a warm spell, which they never could before.

Northwest, a very good year. Light syrup after light syrup. If you are looking to buy medium, it will be $2.90 per pound in that area. In the Endless Mountains 9 time. Good color and flavored syrup." Bulk buyers paid $2.70 for light and medium.

Somerset-Bedford had a very good year and were at times flooded with sap.

For the Potter-Tioga Association, one of the largest producers in Tioga County reported having a good average year, like years ago. Some bushes ran good while others did not. It all depended on location and temperature. His production was just 200 gallons above the 2009 year, with good flavored syrup. Another Tioga County producer reported his production was just 2% above the average of the last 30+ years.

One of the largest, if not the largest, producers in Potter County, reports an average year. The sap had a low sugar content, possibly from the defoliation by the forest tent caterpillar last year. He also had a 10 day period from March 21 - 31 with no sap flow because of cold weather.

MICHIGAN

By: Larry Haigh

Greetings from the Michigan Maple Syrup Association. The 2011 maple season in Michigan was much different than last year. Most everyone had a good year reporting at least an average crop or better. A few folks tapped in mid February hoping for an early run. They said that they got about enough to dirty up the evaporator. One comment on those early runs was that the sugar content was very low. In the southern region of the Lower Peninsula most producers began boiling the first of March. In the northern Lower Peninsula and the Upper Peninsula (UP) production got under way in mid March. In the lower area, we had a warm couple of days around the 20th of March followed by a week of very cold weather. Some people ended their season then. Those that waited it out were rewarded with good runs the last 2 days of March and into early April. In the northern Lower Peninsula folks reported good runs through the first week of April. In the UP they were still boiling in mid April. Almost all reported yields of at least a quart per tap. We personally produced four tenths of a gallon per tap. That was from buckets and tubing without vacuum. There were a couple reports of a half gallon or more per tap. Quality and flavor were reported as excellent. Color varied across the state from fancy, light amber and medium amber with only a small amount of dark amber and grade 'B' being made.

The plans for The NAMSC/IMSI Michigan 2011 Maple Fest are coming along nicely. The dates are October 23rd through October 26th, at the Bavarian Inn Lodge & Conference Center in Frankenmuth Michigan. This is a very nice facility in Michigan's beautiful thumb area. We have a very busy schedule, as always. There will be the meetings of the IMSI and NAMSC, Technical Sessions, Tours and the Banquet. At this writing we are working on a one day confection class put on by Steve Childs the following day, October 27th. We are also working on plans for a two day Grading Class put on by Kathy Hopkins and Henry Marckres also starting October 27th. These are both still in the planning stage and we will keep you informed. Watch for information in the registration packet we will send this summer. Also look for information in coming issues of the Digest and the Maple News.

Hoping to see you all in October in Frankenmuth.

NOVA SCOTIA

By: Arvard Bentley

The maple season in Nova Scotia appears to be all over the place with some producers reporting the best year ever, then others reporting the worst year on record. Saying this, Nova Scotia still expects to come in with an average crop or better. The sales are staying strong. The season came to an abrupt end the last week of April regardless of when the tapping occurred.

WISCONSIN

By: Joe Polok

The season in southern Wisconsin started around March 11. A full month passed before the sap started to flow in central Wisconsin and another week before it got going in the north.

The southern producers were done around April 6 and the northern cookers were still making syrup the week after Easter. Most producers report they made a good crop with production considerably above the 2010 season. Sugar content was less than normal. Color is good, some report making one grade darker than usual.

NEW BRUNSWICK

By: David Briggs

The south experienced a heavy snowfall that prevented some producers from getting in to the bush to tap. To much damage and shoveling to do, so some didn't bother. The ones that did tap had an average season seeing around 2 lbs per tap. This is normal in the south.

The north didn't see as much snow. They usually finish a week or more later than the south. They did not see that great of quality of sap, yielding more of the medium to darker syrup. They received an average to above average this year seeing around 2.5 lbs per tap.

Some getting more than 3 lbs. per tap.

VERMONT

By: Rick Marsh

The 2011 maple season was a challenging one for many producers but in the end it will go down as one of our best seasons in recent memory. In early December a severe wind storm hit parts of northern Vermont with winds of 85 - 90 mph causing major destruction and before producers could get the damage cleaned-up they saw several feet of snow come and bury the remaining damage. In some cases we saw producers lose 10 - 15 percent of their trees. Several more wind storms also hit during the maple season causing everyone to spend more time in the woods than normal and with the lack of frost in the ground it allowed trees to be up-rooted much easier. Sugarmakers in the warmer areas that were ready saw a small sap flow in mid-February and another one in early March but the sugar content was very low. The season started for nearly everyone around the 20th of March which was back to a more traditional starting date. There was a deep snow cover for most of the state and many producers felt this may cause a small crop to be produced but it turned out to be just the opposite. Many producers throughout Vermont had one of their best years ever as far as production and also for quality. Because we didn't have any warm weather until near the end many folks made light syrup for most of the season however some weren't so lucky so overall we have a very good mix of grades with an excellent flavor to supply the consumer with in the coming year. Many of our industry leaders believe there was well over a million gallons produced in Vermont this past spring making it our biggest since the 1940's.

NEW HAMPSHIRE

By: Robin Pearl

The maple producers of New Hampshire overall had a better than average crop, with many reporting record breaking seasons. As opposed to last year's early start and end to the season, this year was timely for the southern section with sap flowing around February 22nd. The season was slow to progress for many locations with ice and snow being a major factor for those in the western and northern areas of the state. Southern to mid-state regions finished the season around April 10th, while the northern section ended their season around April 23rd.

Higher volumes of syrup were recorded this season. B grade was made early into the season, then syrup quickly moved into medium and light amber and remained in these grades for many larger producers. Medium and dark amber was reported throughout the season by many of the smaller producers. Dark amber and again in to B grade was the ending of the season for most. Quality was reported as very high, with many producers hoping to experience this type of season on a regular basis.

QUEBEC

By: Jean-Marie Chouinard

Mr. Trepanier estimates that 2011 syrup production is around 95 million pounds as compared to an annual record in 2009 of 109 million pounds and 2010 production of 88 million pounds.

Syrup is selling this year at $2.78 per pound (Canadian) compared to $2.74 per pound last year. This represents a gross income between 200 and 300 million dollars.

The Federation of Quebec Producers represents 7400 maple businesses and 13,000 syrup producers.

VERMONT MAPLE SUGAR PRODUCERS MERCURY THERMOMETER EXCHANGE PROGRAM

The Vermont Agency of Agriculture is seeking Vermont maple sugar producers interested in exchanging their mercury thermometer for a digital thermometer, at no cost to the producer. Phase I of this program in 2007 was a great success, with over 200 mercury thermometers removed from maple sugar houses and disposed of safely, thanks to assistance from the Chittenden County Solid Waste District in Burlington, Vermont.

The Agency along with the University of Vermont Extension has obtained grant funding from the Lake Champlain Basin Program to finance an exchange that can accommodate an additional 250 producers. Participation in this program is an important step in reducing the number of mercury filled thermometers now being used in the maple industry. If a producer were ever to accidentally break a mercury thermometer in a batch of maple syrup or in a piece of maple processing equipment, it could cost hundreds of dollars to dispose of the contaminated material. The thermometer you will receive in exchange is a digital thermometer, capable of reading in increments of 0.1 degree Fahrenheit at temperatures above 100 degrees Fahrenheit.

If you are interested in swapping out a mercury thermometer for a digital replacement, please contact Annie Macmillan at the Vermont Agency of Agriculture at 802-828-3479, or email her at anne.macmillan@state.vt.us. The program will be first come first serve so contact Annie ASAP!

IDENTIFICATION OF MICROBIAL SPOILAGE IN MAPLE SYRUP SAMPLES

By: B.L. Calder[1], K.M. Hopkins[2], W. Marshall[1], S.L. Annis[3]

INTRODUCTION

An increasing number of maple syrup samples containing floating masses or surface mold have arrived at the University of Maine Cooperative Extension (Figure 1). These samples have originated from Maine, Minnesota, Rhode Island and Vermont. Conventional practices have been to discard obvious mold growths, reboil and consume the syrup. This practice may be risky, especially with the increasing number of food borne illness outbreaks with other food products. Some mold species are known to produce toxins, called mycotoxins, which are toxic chemicals and can be harmful to human health. Some mycotoxins are heat stable, such as patulin, which cannot be destroyed by cider pasteurization temperatures. Patulin can be produced by several fungal species including Penicillium and Aspergillus.

The objectives of this research were:

1. To determine if floating masses or "mother" from contaminated syrup samples are fungal in origin and
2. To determine if Brix levels are related to microbial growth (at levels below 66 degrees Brix).

METHODS

Nine maple syrup samples in 2009 and five maple syrup samples in 2010 were submitted to the Somerset County Extension Office and then transported to the University of Maine for analyses. The floating masses were sampled and streaked onto Sabouraud and Malt Extract Agar plates. Plates were then incubated at 20º C. Isolated colonies were then grown further on the same agar. Colonies were then observed under a microscope and identified. Syrup samples were also analyzed for pH, water activity and degrees Brix.

RESULTS & DISCUSSION

Fungal species were detected in 8 of the 14 samples, which include several Penicillium species (Figure 2), Wallemia (Figure 3), Aspergillus (Figure 4), Trichoderma and Zygomycetes species. The pH levels ranged from 5.78 to 7.21 with a mean pH of 6.28. The water activity ranged from 0.828 to 0.889 with a mean water activity of 0.850. Brix values were mostly above 66 degrees Brix with a mean of 65.6. Three samples out of 14 had Brix levels below 66, and one sample had a Brix level as low as 60.5. Research indicates

[1]University of Maine, Department of Food Science and Human Nutrition, 5735 Hitchner Hall, Orono, ME 04469

[2]University of Maine Cooperative Extension, Somerset County Office, 7 County Drive, Skowhegan, ME. 04976, 207-474-9622, khopkins@maine.edu

[3]Univesity of Maine School of Biology and Ecology, 5735 Hitchner Hall, Orono, ME 04469

Figure 1. Contaminated syrup samples with floating masses.

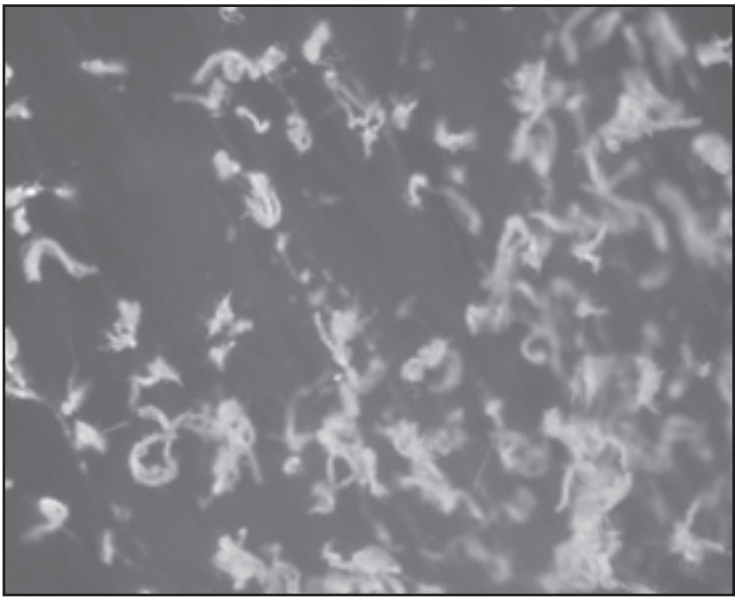


Figure 2. Microscopic view of a Penicillium species which originated from a contaminated maple syrup sample.

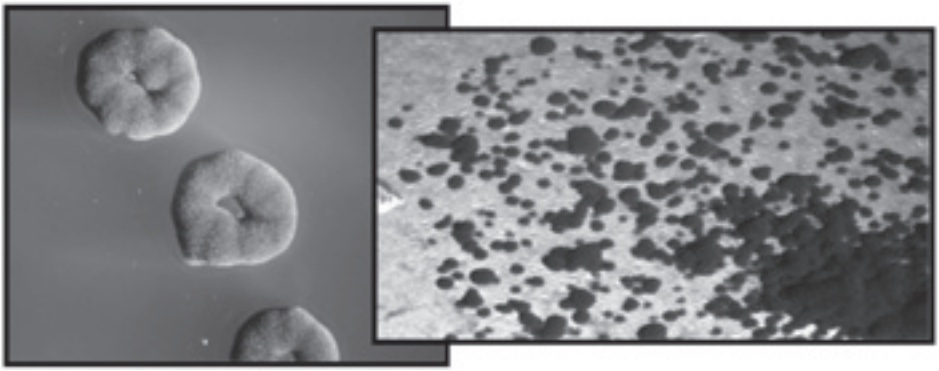


Figure 3. Microscopic views of a Wallemia species which originated from a contaminated maple syrup sample.

these fungal species are slow growing, but can persist in processed maple syrup at levels above 66 degrees Brix, which was not previously thought to be possible. However, some fungi, such as Wallemia species, are xerophiles in nature which means they can persist in high sugar or high salt concentrations. The pH and water activity values measured are at levels that would support fungal growth.

CONCLUSIONS

These results support that "mother" can be fungal in origin and several fun-

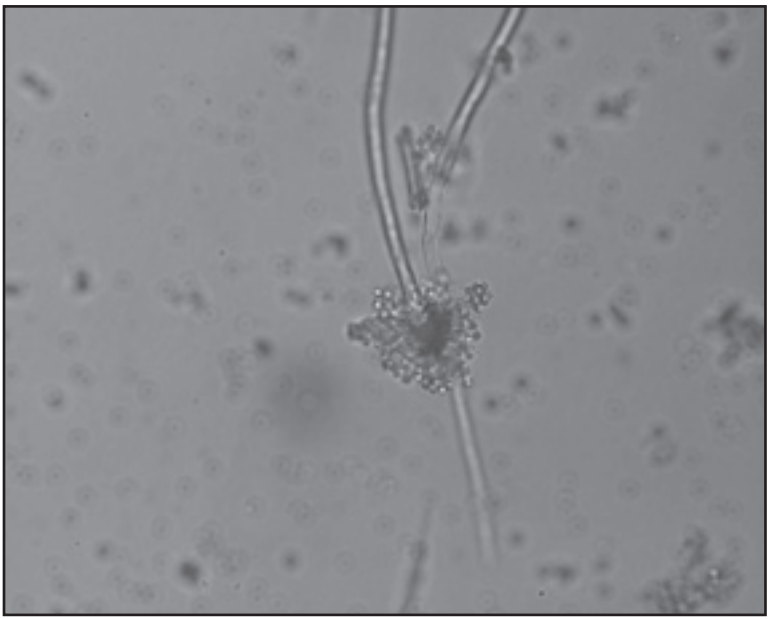


Figure 4. Microscopic view of an Aspergillus species which originated from a contaminated maple syrup sample.

gal species have been identified from the contaminated maple syrup samples submitted to the University of Maine Cooperative Extension. Penicillium, Aspergillus and Wallemia are fungi that were identified in some of the contaminated syrup samples and have the potential to produce mycotoxins which are toxic chemicals that have the potential to harm human health.

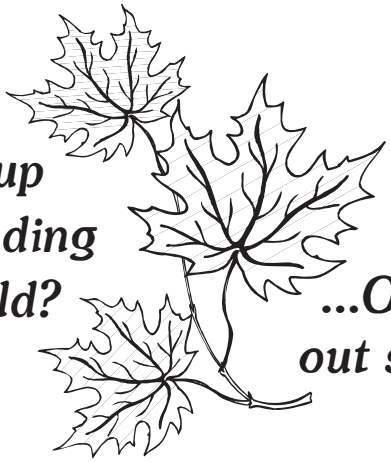
The previous assumption that syrup boiled to 66 degrees Brix does not support microbial growth is in question. According to our findings, we recommend that contaminated syrup or syrup with questionable floating masses should not be consumed or sold to consumers since there may be a high risk of fungal contamination and possibly the presence of mycotoxins.

FUTURE WORK AND REQUEST FOR CONTAMINATED SYRUP SAMPLES

Future research needs to be conducted to further identify these fungi to determine if they can produce mycotoxins in maple syrup. The North American Maple Syrup Council has funded these future research endeavors which include DNA sequencing and mycotoxin detection. We are currently accepting syrup samples for future research studies. Please contact Kathy Hopkins at the telephone number or email above on how to send in a contaminated maple syrup sample for our next phase of research work. We encourage participation to help ensure the food safety of the maple syrup industry.

ACKNOWLEDGEMENTS

This research was funded in part by the Renewable Resources Extension Act.



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The Bacon Jug Company
(a division of Gamber Container, Inc.)
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THE BACON JUG COMPANY

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FOR SALE: Equipment & Supplies from Bakers Maple. Lamb tubing, Bacon jugs, Marcland controls, Carrageenan for maple jelly, 1 1/2 lbs. for $19.95. Used Beckett CF 2300 Oil Burner. Bainbridge, NY *(607) 967-7229. www.bakersmaple.com*

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COMING EVENTS

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September 18, 19, 20, 2011
Lewis and Jefferson Counties Tour Centered in Lowville, NY
Hosted by the Lewis County Maple Producers Association
Questions: 315-376-5270

NAMSC/IMSI ANNUAL MEETING
October 23rd - 26th, 2011
Bavarian Inn Conference Center, Frankenmuth, Michigan
For more information contact:
Larry Haigh, 269-763-2210, email: lehaigh@voyager.net or
Debbi Thomas, 989-685-2807, email: debbi1612@hotmail.com
Jan Currey, 517-223-3267, email: currey@cablespeed.com (registration)

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