

Maple Syrup Digest

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MAPLE SYRUP DIGEST

Official publication of the

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COVER: Russell Hassmann,
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GREETINGS FROM YOUR PRESIDENT



Good day NAMSC members,

The New Year is upon us and I wish you all a terrific one. I hope that Spring 2013 will be a mild one so we can all make great tasting syrup. I hope that all producers can be really proud of the product they sell at source or deliver to their buyers. We all work so hard. We owe it to ourselves to produce an excellent product.

In 2013, will we finally see the unique classification system proposed by the IMSI become a reality and the norm?

I'd like to take this opportunity to thank and congratulate all those taking part in the NAMSC Research Fund. This research aims to help us improve syrup quality and our methods of production.

Thank you also to those who contributed articles to the Maple Digest.

Together we will succeed.

Bonjour chers membres du NAMSC,

Une nouvelle année s'annonce. Je vous souhaite à tous une bonne année. J'espère qu'en cette année 2013 la saison printanière sera clémente afin que nous ayons tous l'opportunité de faire du sirop d'érable de bon goût. Je souhaite tellement que tous les producteurs soient fiers du produit qu'ils vendent à l'érablière ou font parvenir à leur acheteur. Nous travaillons tellement fort. Nous nous

devons de faire un produit excellent.

En 2013, verrons-nous enfin le projet de classification unique proposé par l'IMSI se concrétiser et devenir la norme?

Je profite de l'occasion afin de remercier et féliciter tous ceux qui participent au Fonds de recherches du NAMSC. Les recherches favorisent l'amélioration de la qualité du sirop et nous permettent d'améliorer notre façon de faire.

Merci aussi à ceux qui font parvenir des articles au journal Maple Digest.

Ensemble nous pouvons réussir.

Cécile B. Pichette
Présidente
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Are you concerned about the future of the Maple Industry? Help us fund Maple related research. Producers and Pickers are encouraged to send \$11 per container to the NAMSC Research Fund. Grant recipients are announced at the NAMSC Convention each October.

Suggested contribution is \$.01 per container. Send contribution to treasurer Joe Polak at the address below.



For more information contact:

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



IMSI NEWS

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

As we enter into 2013, thanks is extended to all members of the IMSI Executive Committee and the Board of Directors for their contribution to advancing work accomplishments and the goals of the Institute. Gary Gaudette is especially thanked for his service as a member of the IMSI Executive Committee since he completed his service in 2012. The IMSI Executive Committee for 2013 was confirmed at the IMSI Annual Meeting in Groton Connecticut in October 2012 and is presented as follows:

Yvon Poitras, New Brunswick -

President

Mark Harran, Connecticut -

Vice President

Steve Selby, Vermont -

Treasurer
Richard Norman, Connecticut -

Past President

Dave Chapeskie, Ontario -

Executive Director

It is very important to periodically reflect on the purpose, membership and goals of the Institute. Established in 1975, the International Maple Syrup Institute (IMSI) provides an open forum for the discussion of industry and government policies affecting the integrity, the quality, and international markets for pure maple syrup. The IMSI also works to bring about greater uniformity in the customs and standards adopted by those engaged in the maple syrup industry. The membership is comprised of maple syrup producer associations, maple pack-

ers, maple equipment manufacturers, individual maple enterprises and others. The IMSI communicates and collaborates regularly with officials of the North American Maple Syrup Council in pursuit of industry goals.

This report regarding the IMSI's work program activities and accomplishments is not exhaustive but outlines some of the most significant and ongoing work efforts of the Institute.

TESTING FOR ADULTERATED SYRUP PRODUCTS

The IMSI supports and facilitates an adulteration testing service for its membership and places very high priority on this program. IMSI members are encouraged to utilize this service in circumstances where adulteration of syrup is suspected.

In 2012 the IMSI reviewed options for laboratory testing in Canada and the US in order to ensure that the arrangement for testing, best suits the needs of the Institute.

MISREPRESENTATION OF SYRUP IN THE MARKETPLACE

Working in a leadership role and in collaboration with the North American Maple Syrup Council, the IMSI has formally communicated their concern to Pinnacle Foods regarding use of a container that is very similar to the Sugar Hill Jug for the marketing and sale of a table syrup under the brand name of "Log Cabin - All Natural Table Syrup". It is believed that Pinnacle Food's use of a traditional pure maple syrup jug creates confusion and misleads the consumer who could easily mistake the Log Cabin product for pure maple syrup, due to the characteristics of the jug. There is also concern about shelf-placement

of this table syrup product as well as other table or blended syrups displayed together with pure maple syrup in retail outlets because consumers are potentially misled into thinking that these table syrup products are pure maple syrup.

The IMSI continues to monitor the Pinnacle Foods Log Cabin product.

The IMSI regularly provides advice and input to state and provincial maple association officials regarding misleading syrup labels and advertising of competing syrup products.

SETTING INTERNATIONAL STANDARDS FOR PURE MAPLE SYRUP

The IMSI has a very important role in the development of international standards for pure maple syrup. These standards will help position the industry for the further development and expansion of markets for pure maple syrup around the world. In the 1990's, the IMSI approved an equipment manufacturing standards document to ensure that contaminants would not enter syrup through new equipment installations and to encourage adoption of the new standards in all aspects of the maple syrup production and packing process. These standards have been a very important reference for both government regulators and industry representatives since they were developed and continue to serve as a very useful reference.

Since 2002, the IMSI has been involved in developing an international standard definition, grades and nomenclature for pure maple syrup. This project undertaking has been a very important priority of the institute

for many years and has entered the final stages which should lead to implementation. Adoption of the proposed changes into government maple regulations and development and marketing of new colour classification equipment are required before implementation can proceed. It is expected that government agencies will allow for a transition period to help facilitate change to the new standard.

NUTRITIONAL AND HEALTH BENEFITS OF MAPLE SYRUP

Since 2010, the IMSI has reviewed and consolidated information related to the nutritional and health benefits of pure maple syrup. The IMSI's nutritional and health benefits position statement, scientific papers, and the poster and rack card have been developed and published on a maple nutritional and health benefits CD as well as posted on the IMSI's website. Transfer of this information to maple syrup producers and other users has been ongoing. A poster and rack card were developed taking into account a review of educational and scientific information, input from Health Canada and the US Food and Drug Administration, as well as input from maple syrup industry stakeholders. The IMSI will continue to monitor scientific findings related to the nutritional and health values of pure maple syrup.

OTHER IMSI ACTIVITIES

The IMSI continues to provide an effective forum for ongoing communications among maple syrup producers, maple packers, maple equipment manufacturers and others. This includes quarterly Board of Directors

Meetings held in both Canada and the United States which provide an excellent forum for communications and dialogue regarding issues of importance to the maple syrup industry. The IMSI regularly inputs into government policies which sometimes could significantly and adversely affect markets for pure maple syrup.

The IMSI continues to administer the Lynn Reynolds Memorial Leadership award and the Golden Maple Leaf Awards. The Lynn Reynolds Award recognizes the excellent service contributions of individuals to the North American and International maple syrup industry.

The IMSI's Executive Director and elected officials satisfy many requests for information and serve in an advisory role to the IMSI members and others on an ongoing basis. The IMSI

Executive Committee meets regularly to map out and discuss the IMSI's program agenda and help address ongoing and emerging issues.

You are encouraged to contact Dave Chapeskie, the IMSI's Executive Director if you have any questions, comments or suggestions regarding IMSI business. You are also encouraged to access the IMSI website for further information regarding the Institute. The website address is www.internationalmaplesyrupinstitute.com

Article Submitted by:

Dave Chapeskie,
Executive Director,
International Maple Syrup Institute

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NORTH AMERICAN MAPLE SYRUP COUNCIL

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WHO WE ARE:

The North American Maple Syrup Council, Inc. is an international network of maple syrup producer associations representing sixteen (16) commercial maple producing States and Canadian Provinces within North America. Each member state or provincial association appoints a Delegate and Alternate Delegate to represent their local interests at the Council.

The NAMSC or Council, as it is commonly referred to, is a non-profit organization established with the purpose of bringing together industry leaders, researchers and affiliated industry groups to share common interests, experience and knowledge for the betterment of the maple syrup industry. The NAMSC began as the National Maple Syrup Council in October 1959 and has grown and expanded over the years to serve the needs of its membership and industry.

WHAT WE DO:

Communication & Education

The NAMSC communicates and collaborates regularly with officials of the International Maple Syrup Institute (IMSI) in coordinating efforts and resolving current industry issues. Their mission or purpose of these separate organizations varies in the maple industry. The NAMSC is primarily involved with maple research and education and the IMSI focuses more on marketing and promotion of maple products.

Both organizations interact regularly with outside supporting organizations such as the USDA National Agricultural Statistics Service (NASS) who annually provide our industry with comprehensive production and market statistics, and the The Nature Conservancy who through a collaboration of forest related associations lobby for continued funding of USDA-APHIS for programs targeting non-native forest pests and the eradication of the Asian Longhorned Beetle.

NAMSC - IMSI Conference & Annual Meetings

The NAMSC and IMSI share the same venue each October at their annual conference where they each hold their annual meetings. Here the NAMSC Delegates and Alternate Delegates from the different States and Provinces actively participate in discussion planning and resolution of current maple industry issues. At the meetings NAMSC Delegates and Alternate Delegates receive updates on active maple research, new technology and education. This information is intended to flow back to the membership of their local maple association or co-op through the Delegates.

Promote the Development and Funding of Maple Research

The NAMSC Research Fund is a non-profit, volunteer managed fund established by in 1987 and is a major activity of the Council. The goal of the program to generate seed money for universities and institutions that perform maple research and to open communication between the producers and the

research community regarding the needs and issues of the maple industry. This voluntary contribution program began based on a "penny per syrup container" filled. Producers were encouraged to participate and the fund has expanded over the years to what is now known today as the Maple Research Alliance. It is still based on a "penny per syrup container" but rather than container "filled" it is now container "sold" and designed to increase and maintain consistent funding through an industry-wide network of container manufacturers and distributors, syrup packers, co-ops and maple associations. Participating companies who make the commitment to support and promote the research and educational initiatives of the NAMSC Research Fund are known as Alliance Partners.

WHAT WE PROVIDE THE INDUSTRY:

Publications

The Maple Syrup Digest is a familiar periodical to maple syrup producers throughout the maple belt. It was established in January 1962 and is the official publication of the North American Maple Syrup Council. This quarterly publication provides dependable information including industry reports, research findings, State and Provincial events and information on products and services through its advertisers.

The North American Maple Syrup Producers Manual is "everything you need to know from tree to table". For almost fifty years maple producers have depended on and have been well served by five editions of this publication which guides the industry in forestry, production, technology, maple markets and more. A NAMSC committee works closely with Ohio State University in updating editions by assisting in writing, editing, providing photos and proofing of the manual.

Recognition of Maple Industry Leadership

The Richard G. Haas Distinguished Service Award is presented at the NAMSC annual meeting to a leading maple research organization, research professional or Maple Research Alliance Partner in appreciation for their work and / or contributions to the industry. The NAMSC established this memorial fund in 2011 in the name of Richard G. Hass of Sugarhill Containers in recognition of his support of the goals of the Council, efforts of the Research Fund and overall advancement of the maple syrup industry.

The American Maple Museum Hall of Fame Award is represented through a standing committee of the NAMSC. The award recognizes and honors two individuals at the opening ceremonies in Croghan, New York on the third Saturday each May. This prestigious award is presented in recognition of the recipients' commitment and contributions to the maple syrup industry and is the highest honor the Maple Industry offers.

WHERE THE NAMSC GOES FROM HERE:

Planning & Development

NAMSC Strategic Planning Initiatives began in 2000 with the adoption of a comprehensive Strategic Plan in 2004. The intent was to research and establish a more formal approach to the management of the Council and to better

define the future of the organization through planning. The current Strategic Plan which covers five key areas: Communications, Finance, Organizational Structure & Operations, Research Fund Focus & Education. The plan is monitored and updated annually with planning sessions every three or four years. This document has proved to be a valuable tool in the management and growth of the Council.

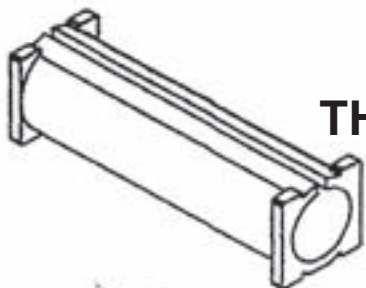
The NAMSC Mission Statement states that "The North American Maple Syrup Council is an international network of maple syrup producer associations, business leaders and affiliated groups brought together to share their common interests, experience and knowledge for the advancement and improvement of the maple syrup industry".

The future of the NAMSC can be best summarized in its mission statement that "The North American Maple Syrup Council will provide and maintain a forum for its member States and Provinces, associates, affiliates and other members to exchange information; promote research; protect and improve product standards and production methods; and to enhance the marketing and promotion of quality pure maple syrup products. The Council will continue to enhance its position as a leader in education and general resource for the maple industry in the United States and Canada.

For more information visit our website at: www.northamericanmaple.org

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2012 Maple Tubing Research

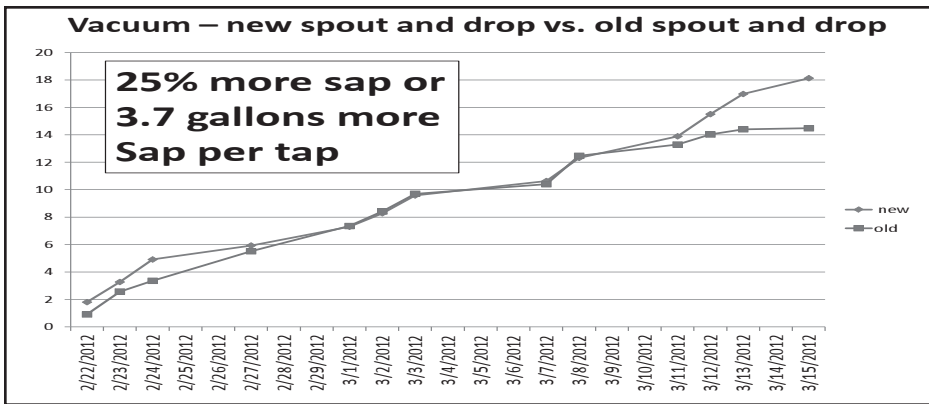
by Stephen Childs, NYS Maple Specialist

In 2012 a variety of spout and tubing cleaning and replacement options were tested to determine the extent of sap yield changes. These tests were done at the Cornell Arnot Research Forest. Treatments except where noted were a direct comparison between a check and a described treatment each with three replications, each replication with 4 to 6 taps, both treatments in the same tree, spaced about 10 inches apart at the same elevation and same basic orientation. The check was usually represented by an old spout and old drop, having been used each season for at least 10 years or in a few cases by a new spout and new drop. The 2012 season started early with our first measureable sap run occurring on February 21st followed by many small runs and temperatures only reaching 50° F one day until March 13th which was followed by 15 days without a freeze and daily temperatures commonly in the 70s and 80s. Once the sap stopped running on the 15th there was no sap run during this warm weather and none of the treatments ran any sap when it finally did freeze again. In the vacuum systems tests the vacuum level was consistently between 21" and 22" Hg. This is 5" to 6" Hg higher than prior years.

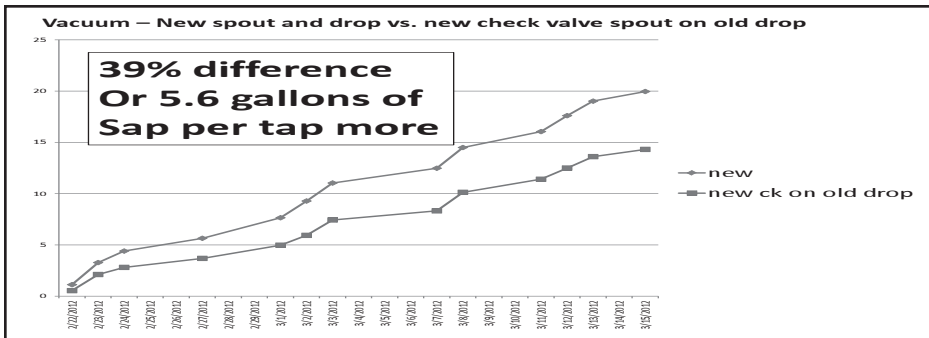
The research goal for 2012 was to first test some rather extreme tubing cleaning or sanitizing techniques to see if by going to extremes we could get old tubing to perform like new. If going to an extreme does not produce significant results then treatments that go just part way will not likely be effective. These extreme treatments include concentrated alcohol washing, boiling spouts in vegetable oil where much higher temperatures can be achieved than when boiling in water and dry heating drop lines to 180°F for two hours. Second there have been some fairly common spout and tubing combinations that we have not had a chance to try in prior years of testing. These included testing clear spouts and copper spouts.

The standard test of comparing yield from a new spout and drop vs. an old spout and drop (used for at least ten years) was also used as a comparison this year. In all the prior seasons the new spout and drop showed at least an 80% increase in sap yield over the old spout and drop and usually over 100%. With this season ending abruptly with no significant warm weather (greater than 50° F) between tapping and the unseasonal warm up that started on March 13th the old spout and drop had just begun to drop in yield performance resulting in just a 25% or 3.7 more sap from the new spout and drop. The new spout and drop yielded 18 gallons of sap per tap and the old spout and drop 14.3 gallons of sap per tap. This test was conducted at between 21" and 22" of Hg. Both the old and new spouts were black plastic.

A new spout and drop was compared with a new check valve spout on an old drop (in use more than 10 continuous seasons) at the 21" to 22" Hg vacuum, new spouts were black plastic. Here the average yield of the new spout and drop was 20 gallons of sap per tap and the check valve on the old drop yielded 14.8



gallons of sap per tap for a difference of 39% or 5.6 gallons of sap per tap more with the new spout and drop. In these replications the difference between treatments started right from the beginning of the season which is not what we have consistently seen in most all comparisons which are normally the same early in the season followed by the spouts that best protect the tap-hole from bacteria and yeast sustaining sap yield while old equipment contaminated with bacteria and yeast begins to reduce sap yield once temperatures above 50°F are observed. This difference from the normal pattern of results make me suspect that this treatment had some poor tap holes or restriction issues that I was not able to identify.

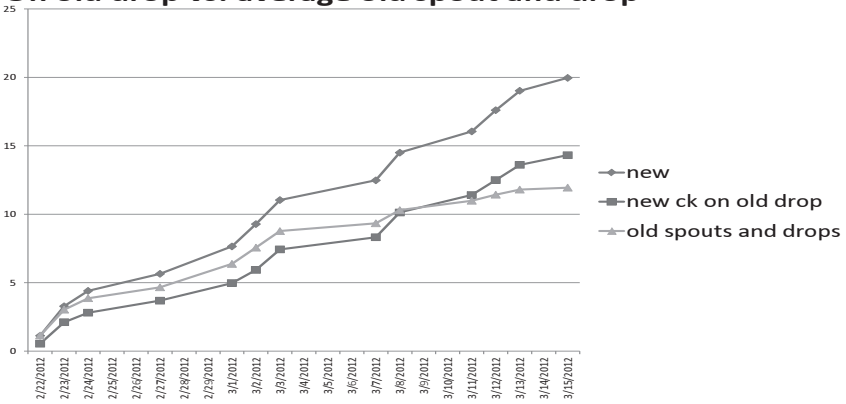


When the new check valve is also compared to the average of new spout and drop results and the average old spout and drop for all the treatments and replications in the sugarbush check valve treatments yielded about a 3 gallons of sap per tap advantage over the old spout and drop treatments.

Treating maple tubing with an alcohol wash prior to the season did not show any yield improvement under vacuum or on a gravity system.

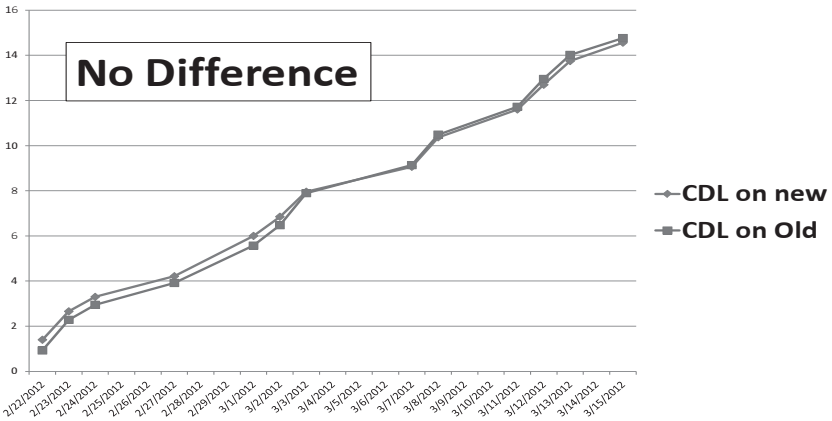
A new clear poly carbonate spout with new drop was compared to a new clear poly carbonate spout on an old drop with no difference. Both treatments yielded about 14.5 gallons of sap per tap. The problem here is that both of these treatments averaged only 14.5 gallons of sap per tap or very near what

**Vacuum: new spout and drop vs. check valve spout
On old drop vs. average old spout and drop**



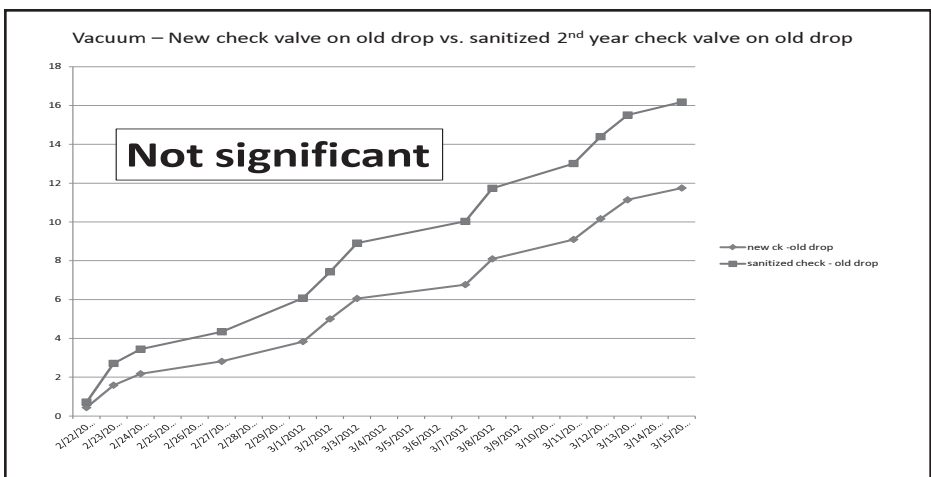
the old spout and drop yielded in other tests, less than where the black spouts were used with new tubing. It is obvious that more tests and more seasons are needed to examine these differences to conclude if clear spouts or black spouts offer some kind of clear advantage.

**Vacuum – New clear spout on new drop
vs. new clear spout on old drop**



One of the questions that consistently comes from maple producers is can the check valves be cleaned and reused? Traditionally the results of trying to clean plastics in the field have not been successful at getting like new response. In the case of check valves they can be transported back to the sugarhouse and handled more easily than trying to return the whole tubing system. In the sugarhouse or at the farm there are more cleaning and sanitizing options available. In this next test check valves that had been used in the 2011

maple season were cooked in vegetable oil at 300°F for 15 minutes then washed with soap and, completely rinsed, dried then checked to be sure the check valve ball was in place and able to move freely in the channel. The hot oil was used to get to a hotter temperature than would be offered by boiling water. It was also to test what physical characteristics would change in the spout when exposed to the higher heat. The higher temperature did release some of the check valve balls from the spout at about 15% rate. Otherwise the spouts showed no negative results of being boiled in the hot oil. The results are surprising. The sanitized check valve spouts averaged about 4 gallons of sap more than the new check valve spouts but the reps were not consistent indicating that this test would not be significant or this average difference would not be expected consistently. Again with the unusual season no conclusion can be drawn from this one set of tests. More seasons of testing are needed to draw any realistic conclusion. Again the differences started right in the beginning of the season rather than being time and temperature induced so sanitation is not the likely cause.



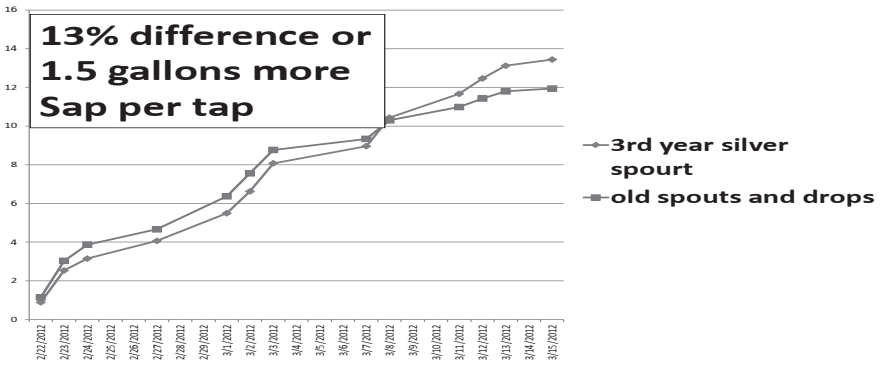
For two years the silver spouts have given about a 70% increase in sap yield in their first and second year of use. In 2012 they were used for the third year in a row and produced a difference of just 13% or 1.5 more gallons of sap per tap. Testing in the fourth year should better indicated if the spouts have lost much of their effectiveness or the sudden end of season was the reason for the smaller result.

When compared with the average of new spouts and drops in the sugar-bush it would indicate that it was not all due to the unusual season. The new spout and drop averaged 19 gallons of sap per tap, 3rd year silver averaged 13.8 gallons of sap per tap and old spouts and drops averaged just 12 gallons of sap per tap as seen in the chart on the next page.

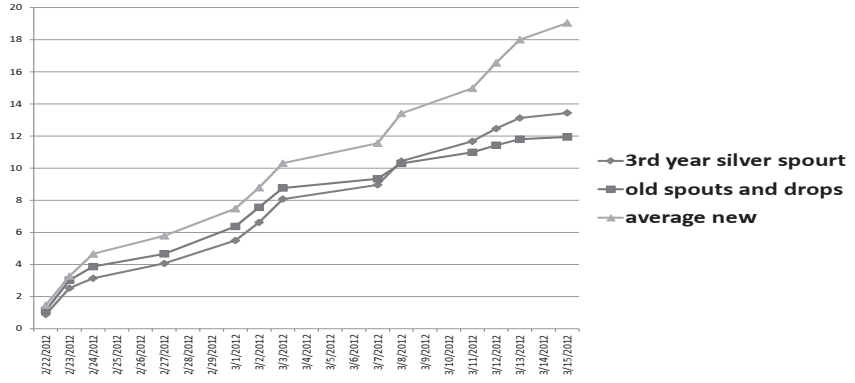
A series of tubing without vacuum tests were also conducted in 2012.

Under gravity the new spout and drop vs. a check valve on an old drop resulted in no difference in the yield.

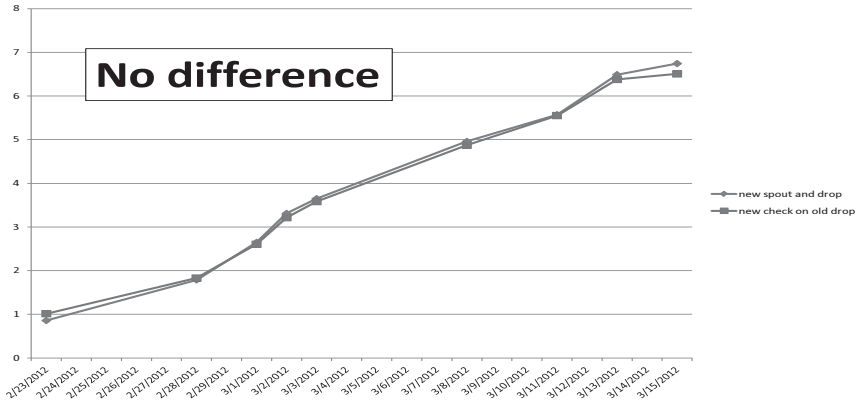
Vacuum – 3rd year silver spouts on old drops vs. old spouts and drops



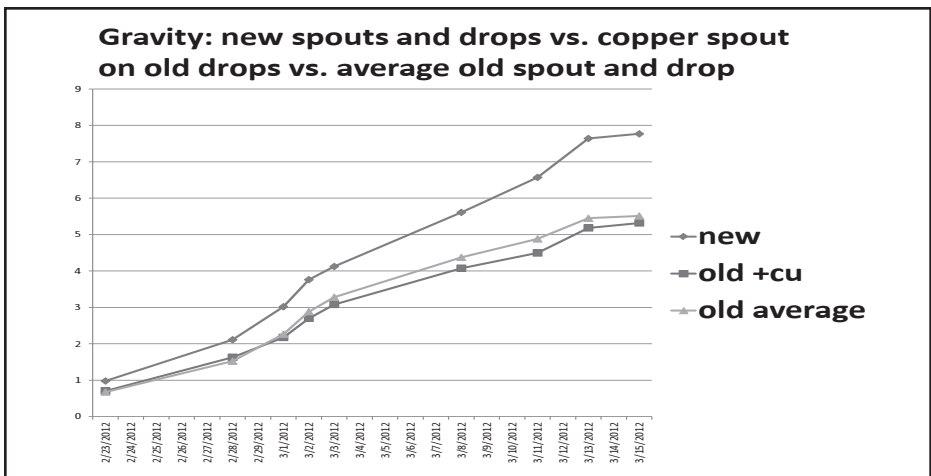
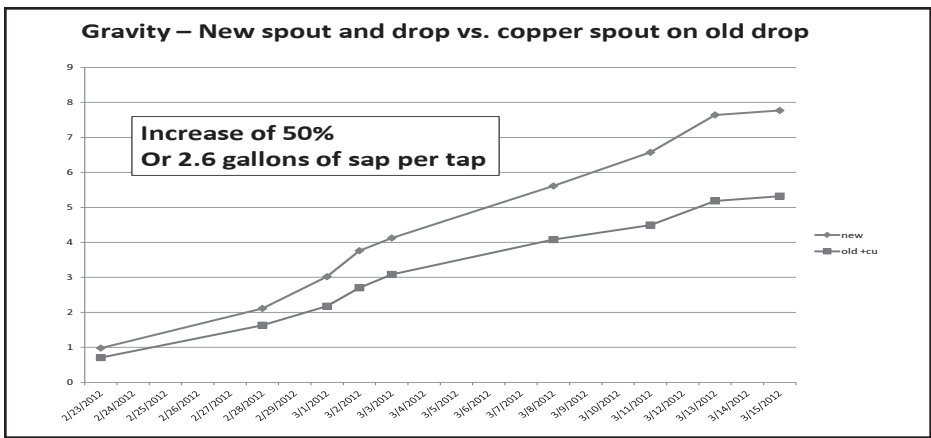
Vacuum: average new spout and drop vs. 3rd year silver on Old drop vs. old spout and drop



Gravity – new spout and drop vs. new check valve spout on old drop

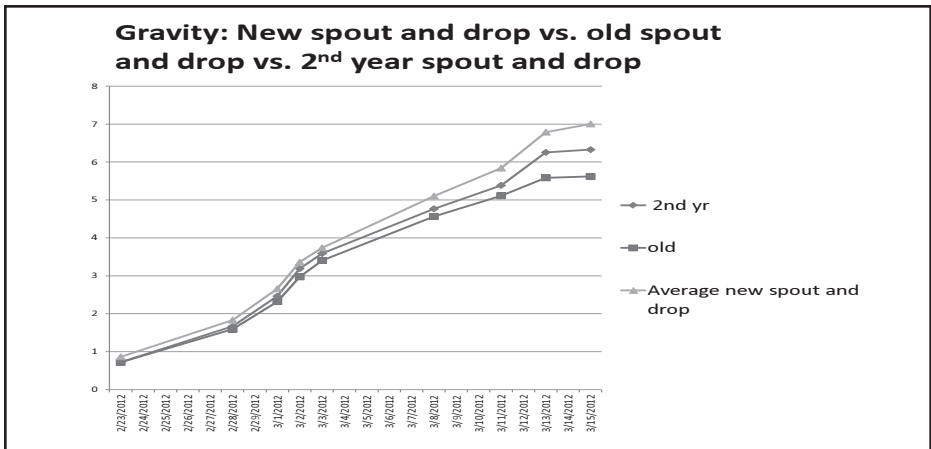
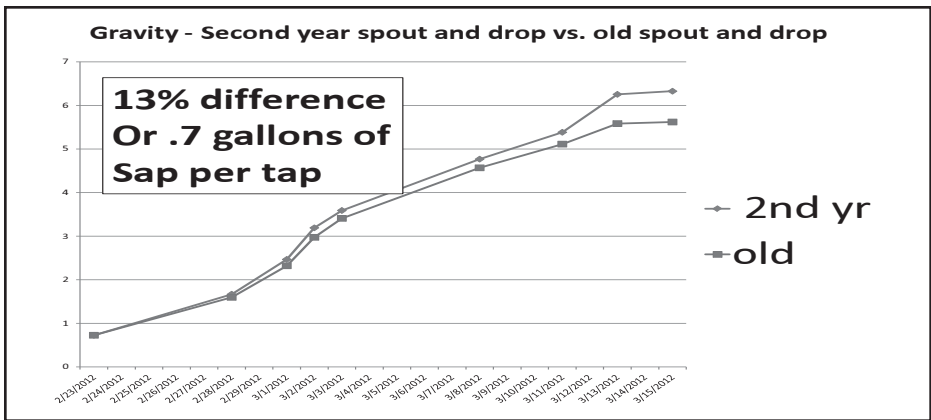


A test was run where a new black spout and new drop was compared to a new copper spout with an old drop. The copper spouts performed the poorest of all treatments resulting in just 5.2 gallons of sap per tap for the season while the new spout and drop produced 7.8 gallons of sap from the same tree.



The question of how long does the effect of a new spout and drop last was again tested in 2012 where a second year spout and drop was compared with an old spout and drop with only a gain of .7 gallons of sap per tap or 13%. Over the years this has been tested this difference is the most inconsistent of all the tests tried. Generally a second year spout and drop is much less than new but still better than old.

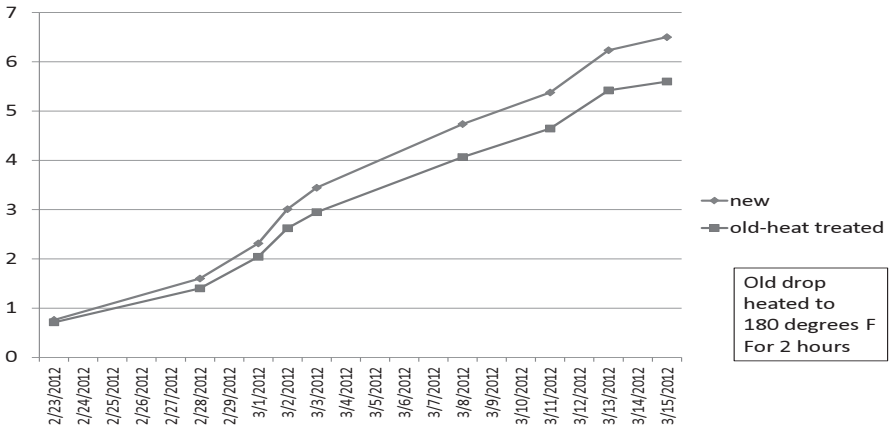
In looking for ways to clean and sanitize used tubing so that the tap will yield like it would with new spout and drop has lead to some extreme attempts at finding what the limits are on tubing treatments. In this experiment droplines that have been in continuous use for over 10 years were baked in an oven at



180°F for two hours were compared with new droplines. In this case both the new droplines and the heated droplines were connected with the taphole with a new black plastic spout. In this test the new droplines with new spout yielded about 6.5 gallons of sap per tap while the heat treated droplines with new spout yielded about 5.6 gallons of sap per tap or about 16% less yield. In order to accomplish this kind of treatment the maple producer would have to remove all of the droplines and take them to a treatment site then return them to the trees. For this amount of work a bigger difference would be necessary in order to be financially profitable. This test should be conducted again as many of the taphole sanitation practices did not have a chance to enhance yield due to the unusual weather as they have in all the other years testing. See figure on next page.

This research was supported in part by the North American Maple Syrup Council Research Fund.

Gravity – New spout and drop vs. New spout on heat treated drop



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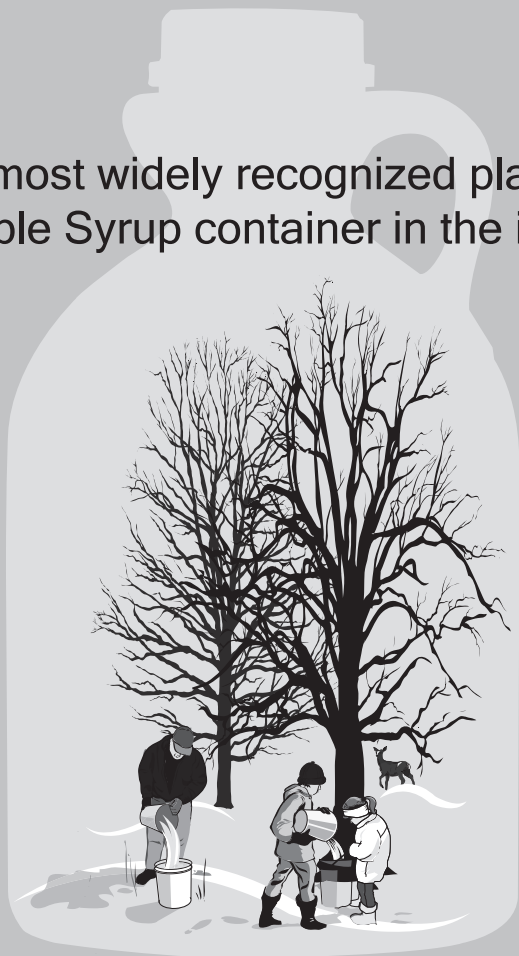
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The Critter Patch™ (Patent Pending)

Upon the installation of our six hundred tap tubing operation, the squirrels, chipmunks & raccoons began to wreck their havoc. When we did the one hundred psi air & water flush in the fall it was quite evident that all we had done was to create a very nice sprinkler system for the trees. All this work to install an air tight tubing system with vacuum was now a total failure.

And so began the search to undo the efforts of our bucktooth buddies.

The first attempts were with variety of tapes, electrical, Teflon, duct, PVC but all these tapes had small leaks and did not hold with the one hundred psi back wash and most importantly none of these materials are FDA approved for food contact.

I wish to take a moment to stress how damaging it is to our industry when one syrup maker or industry supplier offers for sale any product which is substandard. Once the news of these issues become public; all of us must pay the penalty even if the vast majority are doing a terrific job.

The next idea was a patch cut out of three quarter main line and hose clamps.

This sealed the lines well and held the backwash pressure and was FDA food contact approved, but because the clamp must be opened

completely to go over the line it was time consuming (about seven minutes each) and at twenty five cents to one and a half dollars a clamp, the clamps were expensive. Also you are forced to carry a bag of clamps of various sizes ranging from one half inch for a five sixteenth lateral to a three and one half for a one inch main line, and last but not least splitting the mainline to make the patch was time consuming, and the razor knife is just plain dangerous. It always happens, when one is one half mile from the sugarhouse, the clamp size needed was the only one not in the bag. Got to be a less expensive, quicker way to clamp that patch on the lines.

Experiments started:

Wonder if a wire tie would work, Those are always in the bag I carry.

One wire tie directly over the leak site, on a one inch main line using a patch made from a three quarter main line: good start but still some leak.

One wire tie on each side of the leak site; better than using one tie but still some leak.

Wonder if the location of the twist of the wire tie changes the seal, so let's put the twist opposite the leak area.

Bingo! Total seal.

(See ad page 13)

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For further information, contact Yvon Poitras at yrp@nb.aibn.com

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2017 • Quebec **2018** • New Hampshire **2019** • Minnesota

2020 • Wisconsin **2021** • New York **2022** • Massachusetts



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TECHNICAL SESSIONS

TAPPING INTO CONNECTICUT 2012

Does Timing of Tap Removal Impact Tree Health?

Presenter: Dr. Gary Graham, State Maple Specialist, Ohio State University Extension - This project looked to see if timing of when taps were pulled at season's end had an impact on taphole closure and staining on the tree.

Formalizing Maple Syrup Production Statistics - (Research Fund Grant Report)

Presenter: Dr. Gary Graham, State Maple Specialist, Ohio State University Extension - This project covered the historical maple production statistics for the US and Canada.

Industry Changes and Updates, Regulations in VT

Presenter: Henry Marckres, Consumer Protection Chief, Vt Agency Agriculture, Food and Markets - This Report provided the most recent industry changes and updates on maple regulations in Vermont.

UVM Proctor Center Update - (Research Fund Grant Update: Evaluation of Spout Sanitation and High Vacuum without Pumps and Predicting Sap Yields in Vacuum Tubing)

Presenter: Dr. Tim Perkins, UVM Director, Proctor Maple Research Center - This presentation provided an update of recent and ongoing research at the UVM Proctor Center, including spout/tubing sanitation practices and increased delivery in tubing systems.

Impacts of Reverse Osmosis on Syrup Composition and Flavor

Presenter: Dr. Abby van den Berg, Research Assistant Professor, University of VT Proctor Maple Research Center. - The use of reverse osmosis can substantially increase the speed, efficiency, and profitability of processing sap into syrup. However, it is sometimes asked whether the use of RO has any impact on the quality or properties of the syrup produced. Results were presented of an experiment in which the composition and flavor of syrup produced simultaneously from raw sap and the same concentrated to 8% by RO were compared.

Modeling and Simulation of Sap Flow in Maple Trees

Presenter: John Stockie, Associate Professor, Dept. of Mathematics, Simon Fraser University, Burnaby, BC - In this research project the aim is to develop a detailed mathematical model that captures the flow of both sap and heat within the maple tree. It began by addressing an outstanding fundamental question about the underlying causes of maple sap exudation and whether it is due to thawing of frozen sap, osmotic pressures between cell elements, or some other physical or biological process. Aided by our improved understanding of these cell-level processes, we can then "scale-up" our results to permit the study of the whole tree. Our ultimate goal is to develop a software

package that provides physically accurate simulations of sap flow during harvest season and can be used to study the effect of changes in climate, sap harvesting strategies, etc.

Continuing Experience with Fresh Maple Soft Drinks, Maple Popcorn and Maple Cotton Candy

Presenter: Stephen Childs, State Maple Specialist, Cornell University - This session covered Cornell's continuing experience with fresh maple soft drinks, maple floats, maple popcorn and maple cotton candy. Maple cotton candy has been an important value added product in NY for about 15 years but developments over the last three years had helped make a better product. Maple popcorn was added to the NY State Fair booth in 2011 with good success and 2012 data and experience was shared. Fresh maple soft drinks and floats were tested at a variety of locations and added to the state fair booth in 2012. A report was given on how the products were handled and accepted.

Economics of Managing Maples for Syrup or Saw Timber Production

Presenter: Michael Farrell, Director Uihlein Forest, Cornell University - Microsoft Excel spreadsheet was developed that allows users to determine the economic impact of managing an individual maple for saw timber production or leasing it for syrup production. This presentation provided an overview of this Net Present Value calculator and the many variables that determine whether it is more profitable to manage an individual tree for saw timber or maple production. Some of these variables include species (sugar or red maple), diameter, growth rate, stumpage and syrup prices, discount rate, property taxes, and the time horizon of the investment period. Participants gained an understanding of the many factors that determine the optimal use of a maple tree and learned how to utilize the NPV calculator and apply it to their own situations.

The Benefits Associated to Sanitation of the Maple Sap Collection System

Presenter: Luc Lagace, Head of Team, Centre Acer - This presentation highlighted the benefits of sanitizing the maple sap collection especially using isopropyl alcohol (IPA 70), on the microbial quality and yield of maple sap.

Identification of Fungal Contamination in Maple Syrup - (Research Fund Report)

Presenter: Beth Calder, University of Maine - Maple Syrup processors occasionally observe fungal contamination in their syrup containers and it is not known if they pose a health risk. Ongoing studies at the University of Maine have confirmed and identified fungal organisms in the contaminated syrup samples. Fungi were isolated from 32 syrup bottles from different processors in the U.S. Fungi were identified based on morphology and by comparing their DNA sequences from the ITS region and B tubulin gene to

known sequences. Common genera were *Penicillium*, *Aspergillus*, and *Wallemia*. Some of the identified species are known to produce mycotoxins, and we are determining if these toxins are produced in syrup. Syrup is typically bottled at 82 C to decrease the risk of microbial contamination. Spores from some of the fungi were able to germinate after treatment at 70 C for 3 minutes. Maintaining higher syrup bottling temperatures may be one of the future recommendations to minimize fungal contamination in maple syrup.

Invasive Plants and Their Danger to Sugarbushes

Presenter: Tim Wilmot, Maple Specialist, University of Vermont Extension - While sugarmakers are understandably concerned about the potential devastation caused by insects, invasive plants are also serious threats to maple forests. Mechanical and chemical methods exist for controlling alien plants, but the best solution for forest landowners is to prevent an infestation from occurring. In some areas, infestations are too advanced to be entirely eliminated; these situations call for prioritizing what can and cannot be reasonably accomplished. This presentation discussed identification and control strategies for certain key invasive plants likely to be found in our woods.

Submitted by:

Joe Polak, Secretary North American Maple Syrup Council

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2013 SAP PRICES

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

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

Remember these prices are for sap delivered to the sugarcane house.

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

sugar	\$/gal.	sugar	\$/gal.
0.8	0.10	2.50	0.42
0.9	0.12	2.60	0.43
1.00	0.14	2.70	0.45
1.10	0.16	2.80	0.47
1.20	0.18	2.90	0.48
1.30	0.20	3.00	0.50
1.40	0.22	3.10	0.52
1.50	0.24	3.20	0.53
1.60	0.26	3.30	0.55
1.70	0.28	3.40	0.57
1.80	0.30	3.50	0.58
1.90	0.32	3.60	0.60
2.00	0.33	3.70	0.62
2.10	0.35	3.80	0.63
2.20	0.37	3.90	0.65
2.30	0.38	4.00	0.66
2.40	0.40		

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FDA FOOD FACILITY REGISTRATIONS

“URGENT: FDA Food Registrations Due

The Food Safety and Modernization Act (FSMA), signed into law in early 2011, aims to protect the American food supply through regulations that prevent contamination rather than responding to it. Under the old Bioterrorism Act, many maple sugar makers were exempt from registering their facility with the FDA. However, that law has been superseded by the FSMA and the way the regulation impacts the maple industry has changed. **All maple sugar facilities that process and/or package a food product must register with the FDA.** The FDA makes the distinction that any sugar maker who collects and boils sap is undertaking the step of processing sap and therefore must register. The system for registering has changed to a biennial registration; in order to conform all registrations must be updated and submitted to FDA by 12/31/2012.”

The reasoning behind the registration is explained by the following, which is taken directly from the FDA website:

“2.15 Q: [Added February, 2004]

Would maple syrup producers be exempt from registering as farms?

A: The response to this question depends upon the activities of the maple syrup producers. FDA believes that the activities of maple syrup producers customarily consist of two types: gathering sap from sugar maple trees and concentrating the sap through the application of heat to make syrup. Gathering sap is “harvesting” as defined in the Interim Final Rule (21 CFR §1.227(b)(3)). However, concentrating sugar maple sap by heating is a form of manufacturing/processing. (21 CFR §1.227(b)(6)).

Accordingly, a farm that both gathers and concentrates sugar maple sap is a “mixed-type” facility that is required to be registered, unless all of the concentrated sap is consumed on the farm or another farm under the same ownership”

Even if you have previously registered your facility with the FDA (at any time before October 22, 2012), you are required to re-register your facility every 2 years (in October-December 31 of the even numbered years - 2012, 2014, etc.).

Even if you are already inspected by the FDA you still need to do this Food facility registration with the FDA.

The Registration information is available from:

<http://www.fda.gov/Good/FoodSafety/FSMA/ucm314178.htm>

Friggatriskaidekaphobia Trivia

Here are a few facts about Friday the 13th
(Taken from the 2013 Old Farmers Almanac)

In the 14 possible configurations for the annual calendar (see any perpetual calendar), the occurrence of Friday the 13th is this:

- 6 of 14 years have one Friday the 13th
- 6 of 14 years have two Fridays the 13th
- 2 of 14 years have three Fridays the 13th

No year is without one Friday the 13th, and no year has more than three.

2013 has two Fridays the 13th, in September and December.

Months that have a Friday the 13th begin on a Sunday.

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