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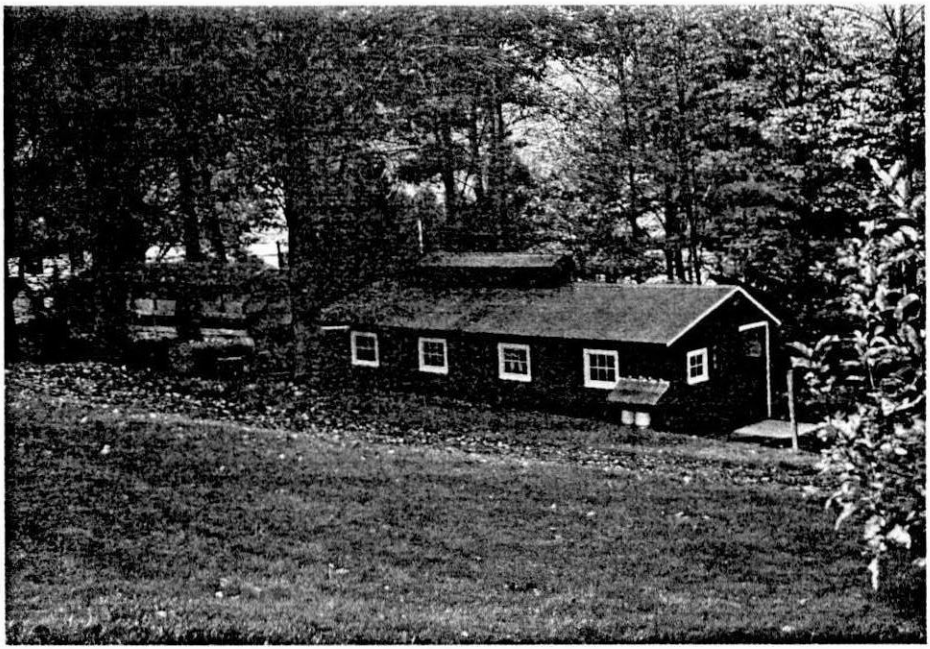

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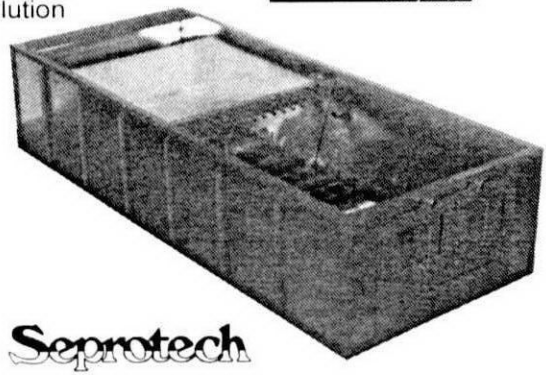

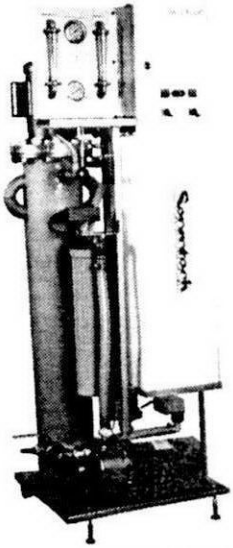

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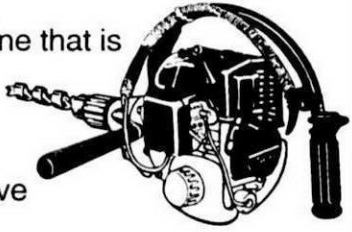

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COVER: Zawalick's Sugarhouse, Northampton, Massachusetts

GREETINGS FROM YOUR PRESIDENT

Here we go again! A whole new year is upon us and the sugaring season will be here before we know it. I suppose it's time to check the pipeline, check that vacuum pump and try to figure where all the tools disappeared to over the summer and fall. The drought we had this summer and our low water table certainly has been eliminated by our heavy rainfall this fall. All the lakes and streams are back to normal and as this is being written, we have more snow on the ground than we've had in the last five years. We have about three feet, in our bush. The snowmobiles are useless and snowshoeing is very hard, because the snow is very light and fluffy. The conditions are right in our area for a good year, but Mother Nature may have other ideas for us, we we will have to wait until the end of April to see.

While you are waiting for your season to start you can mull over the following: Quoted from the "Surefire Secrets to a Successful Syrup Operation" by Van Jansen, Jan. 1981.

1. Have an unlimited bank account.
2. Don't stop to rest a thirsty draft horse near the sap holding tank.
3. Always have one eye on the 'free help' for they become mighty generous when for compensation they sweep the shelves clean of four maple syrup jugs (for one hour of work!).
4. Avoid hollow trees at the end of tubing line.
5. Place the woodpile on the path to the sugar house; there are still some that will arrive at the door fully laden.
6. Avoid abrupt entries into the woodshep after hiring school girls and boys for help.

To all sugarmakers may we hope for a good season.

Sincerely,

Robert S. Smith
President

AMERICAN MAPLE MUSEUM REPORT

PO Box 81
Croghan, New York 13327

By Haskell Yancey, Jr.

This is the time of year when maple meetings are taking place and we are all anticipating this year's maple season. Of course it's hard to think past the season, because the success or failure of our efforts will be determined by this five or six week time period.

At the Maple Museum, however, we have begun plans for the post season, especially plans concerning the Maple Museum Opening and Induction Ceremonies. As always, the event will be held on the second Saturday in May which in 1996 will be May 11th.

Even though the names of the inductees are not yet known and the local maple queen contestants have not yet been selected, plans are progressing for both parts of the event. We hope this years event will continue to be a success, as many of you have helped to make it in the past. We also hope your plans can include participating in the opening weekend.

IMSI BUSINESS

The year was 1976. It was the bicentennial year and Jimmy Carter was elected President of the United States. Rene Levesque of the Parti Quebecois captured a majority of the Canadian National Assembly seats. The Pittsburgh Steelers were the NFL champions, winning the 10th annual Super Bowl defeating the Dallas Cowboys. The Montreal Canadiens of the NHL won the Stanley Cup deafeating the defending champion Philadelphia Flyers. Movie of the year was "One Flew Over the Cuckoos Nest." Leading popular singing entertainers included Joan Baez, John Denver, Waylon Jennings, and Anne Murray. In aviation, the "Concorde" was born. McDonalds advertised "Over 13 Billion Hamburgers Served." And, the International Maple Syrup Institute was formed. Yes, the IMSI has faithfully served the maple syrup industry for 20 years.

The need 20 years ago was that we were buried with a surplus of dark syrup. We had to eliminate that surplus. We needed an organization which allowed commercial companies to be members and in which those companies could exercise board of director privileges. Formation meetings began in 1974 in Montreal. In 1976, the charter was finalized, the logo was created, and the IMSI was born. The purpose was simple, promote pure maple syrup and protect the integrity of pure maple syrup by representing purity with a logo. Today, those philosophies have not changed. The idea worked and is still working. The original surplus disappeared and a few since. The IMSI, a great organization which belongs to you, is at your service. It is totally dedicated to serving the pure maple syrup industry. Buy some IMSI promotional items. Explain what the logo means to your customers. Be proud of your IMSI's 20 year history.

As we go into 1996, things could not be better. Optimism is obvious. The surplus is gone. Warehouses are empty. Prices are good. Markets are strong. Equipment for expansion is readily available. I could not paint a prettier picture. Our industry is on the verge of great things.

So tap those trees. Make lots of syrup. Make some money. Take note of the IMSI and its achievements. Use and protect the logo. Police your product. Have a Happy and Prosperous New Year. We will talk again soon.

Lynn Reynolds
Executive Director

EXPLORATION IN TURKEY FOR BIOLOGICAL CONTROL ORGANISMS FOR THE PEAR THRIPS

By E. Alan Cameron and David A.J. Teulon[1]
Department of Entomology
Penn State University
University Park, PA 16802

The pear thrips, *Taeniothrips inconsequens* (Uzel) (Thysanoptera: Thripidae), is a pest of maple which originates overseas. This insect was introduced into western North America early in the 20th century, and is generally considered to have originated in Europe. Previous exploration in western Europe for parasitoids that might have potential for use against pear thrips in the New World have had limited success (Carl et al. 1989, Anon 1990, Teulon and Cameron 1992). For several years now, we have believed that pear thrips may well have originated farther east, perhaps from Asia Minor to as far east as portions of China (Teulon et al. 1993). With support from a NAMSC research grant, we were able to spend two weeks in April, 1995, in southwestern Turkey seeking candidate species for later intorduction to the maple region as a part of an integrated pest management program against this pest. Prof. Irfan Tunc of the Faculty of Agriculture at Akdeniz University in Antalya, and his students, were gracious, supportive, and accommodating hosts to our visit, and greatly facilitated our efforts.

Exotic insect pests that have been introduced to a new part of the world normally come without any of the natural enemies that help to keep them in check in their homeland. 'Classical' biological control is one component of integrated pest management in which we attempt to re-establish at least a portion of the balance between a pest species and its natural enemies. It involves searching for natural enemies in the native homeland of the pest species, and evaluating what (if any) role each of these associated species plays in regulation of population levels of the target pest. We must also deptermine what other species (if any) the natural enemies of our target pest may attack, as well as their potential for becoming a pest in their own right if introduced into a new environment. And we need to learn as much as possible about the biology and behavior of each potentially beneficial species we identify. The primary goal of our travel to Turkey was to determine if potentially useful natural enemies are present in that part of the world. This is one more early step in a long range program to improve our ability to manage, in a biologically sound and economically advantageous manner, the pear thrips in North American maple forests.

More specifically, our objectives were as follows:

- to explore a small part of Turkey to determine if the pear thrips is present;

[1]Current Address: New Zealand Institute for Crop and Food Research Ltd., Canterbury Agriculture and Science Centre, Lincoln, New Zealand

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• to determine whether natural enemies of the pear thrips can be found in association with the pest insect if it is present;

• to collect, for purposes of documentation and identification only, representatives of any potentially useful species of natural enemies of the pear thrips; and,

• to assess the possibility of continued cooperation in the region should promising natural enemies of pear thrips be identified.

Collections of insects, primarily from flowers of a locally common woody shrub, *Arbutus andrachne* (Ericaceae), yielded substantial numbers of pear thrips adults in the environs of Antalya. *Arbutus* was, by far, the most common plant host for pear thrips in the area. We examined, at least briefly, most other woody plants which were flowering during our stay, looking for evidence of thrips activity. Most of the thrips we found were first or second stage larvae. Male adults (which are not known to occur in North America), as well as numerous female adults, were collected, lending support to our belief that this species originated in Asia Minor or Asia. *T. inconsequens* was not the only species of thrips collected from *Arbutus*, but it was the most common.

Approximately 80 adults, both males and females, of *Ceranisus* sp. nov. (Hymenoptera: Eulophidae), [a species new to science], were collected in association with pear thrips. (All except one of the *Ceranisus* adults were collected in association with thrips larvae feeding on *Arbutus*.) Limited observations

demonstrated that females of this new species readily sting *T. inconsequens*. Lesser numbers of at least two additional species of hymenopterous parasitoids, and possible predators representing two orders, were collected. We believe that all of these species, and perhaps others that might be found with more extensive exploration, warrant evaluation as potential additions to the fauna of North American sugar maple forests and sugarbushes for management of the pear thrips.

Enthusiastic willingness to cooperate in additional studies was expressed by Professor Tunc. The caliber of graduate students we met during our stay impressed us favorably. Administrative support of international cooperation was given to us by the Dean of the Faculty. Support of research in Turkey, by Turkish students, to address our program needs would be musch more economical than sending an American student or professional overseas for an extended period of time. Studies to describe the biology and behavior of *Ceranisus* sp. nov. (and any other species which we might want to introduce to North America for pest management purposes) must be completed prior to any request to government authorities for permits to import the species to the New World. Introductions will be approved by regulatory authorities only as studies are done in enough detail to alleviate any fears that an introduced organism will itself become a pest in a new environment.

Assuming successful completion of overseas evaluations, colonies of the parasitoid must then be processed through approved quarantine facilities to preclude even inadvertent introduction of undesirable biological material into the New World. Stocks must then be expanded in laboratory rearings to provide adequate numbers of individuals for field releases. Releases should be made at multiple sites, and over a period of several years, to give the greatest chance of successful establishment. Releases must be monitored critically to determine and document the consequences of the releases and, we would hope, establishment of the introduced beneficial species.

From our brief trip, we are enthusiastic about pursuing these studies. We were successful beyond our wildest dreams, even though we believed that we were headed to a promising part of the world. We know know that there are, indeed, potentially useful species of natural enemies that we may eventually be able to introduce to our maple region. But this is only the first step of many until we reach that stage. With the continued support of the industry, and considerable support from funding agencies, we may eventually be able to minimize the damage caused by the pear thrips to maple syrup production in North America.

We gratefully acknowledge the support of our program by the Research Committee of NAMSC, and the support and assistance of our Turkish colleagues.

References cited

Anonymous. 1990. Pear thrips in North America. CIBC Annual Report 1989. P. 8 & 33. CAB, International Institute of Biological Control.

Carl, K., J. Yuill, M. Parsch and C. Prior. 1989. *Taeniothrips inconsequens* in central

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Europe and its natural enemies. Report of Work in 1989. CAB, International Institute of Biological Control, European Station Report, Delemont.

Teulon, D.A.J., and E.A. Cameron. 1992. Biological control of the pear thrips (*Taeniothrips inconsequens* (Uzel)) with the thrips parasites *Ceranisus menes* Walker and *Ceranisus pacuvius* Walker; for 1992. p. 31–31 *in: Proceedings: Technical sessions & abstracts of sponsored research.* 1992 Joint Meeting of North American Maple Syrup Council, International Maple Syrup Institute, Ohio Maple Producers Association. 2224 October. Quail Hollow, Concord, OH. The Ohio State University.

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TWENTIETH ANNUAL MICHIGAN FALL TOUR

By John Anton

West Michigan's highly diversified agriculture served as the site of the twentieth annual fall tour of the Michigan Maple Syrup Association on Saturday, September 30th, 1995

This years tour was coordinated by past board member David Theule of Ada who scheduled stops at three Kent and Allegen County Maple Producers.

Maple HIlls Sugar Bush is operated by David and Connie Theule. David's father immigrated from the Netherlands in 1908 and purchased this farm in 1919. Dave has about 3200 taps and only 50 on the farm. The bulk of the sap is purchased from neighbors in this area of encroaching urbanism. The sap is gathered by about ten miles of tubing in this extremely hilly area. The operation features a distiller salvaged from an old World War II submarine. The distiller handles 200 gallons per hour and runs without attendance. The concentrate comes off at 40 Brix (2 to 1), much too rich to put in the flue pan. The concentrate is pumped to an overhead storage tank, where it feeds the flat pan. The evaporator is a 4' x 12' Small Brothers fired by a two year supply of wood. Though Dave prefers the nuts and bolts of the operation, the Maple Syrup Run with both a competitive and non-competitive walk had 800 participants in 1995. The event grows at a 20% rate each year. This is an all family event with a free pancake breakfast served.

From Ada the tour's second stop was hosted by Bob and Roger Vande Bunte of Hudsonville who operated under the Van Bunte Brothers label. The operation began in 1981 with but 50 taps. Today the Vande Bunte's have over 1600 taps this year with plans for 2000 taps in 1996. In addition sap is purchased from local producers. Annual production is over 500 gallons, however the 1995 disaster year's production was reduced to 200 gallons. The fourteen year development of the operation is evident by the equipment utilized. The evaporator is an oil fired 2 1/2' x 10' Small Brothers/Leader. A Reverse Osmosis machine assists in the process.

Simeon and Dona Maier of Caledonia hosted the third and final stop of the fall tour. Maier's Sugar Bush is a traditional Michigan business operated on the same site for nearly 80 years by the Maier family, the last 40 by Simeon and Dona. The Maier have 1000 taps and make about 250 gallons annually. Syrup is produced in the Sugar Bush where there is no electricity to the site. Gas lanterns provide the needed light. The evaporator is a 4' x 8' wood fired Small Brothers machine. The Maier's operate a Farm Market featuring the syrup products made on the farm. Substantial purchases of additional maple syrup is required to meet the annual sales volume of the market. Maple cream and sugar are gaining in popularity with their customers many of which travel but a short distance from Grand Rapids just a few miles north of the market.

The tour concluded with dinner served right across the street at the United Brethren Church. A moment

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of silence was observed for Fern Gearhart, Board Member Emeritus who passed away on Thursday, September 28th, 1995. Cindy Lally, daughter of David and Connie Theule and a former Maple Syrup Queen provided the dinner music with her fine playing of the harp. After dinner entertainment was provided by Melissa Malski, granddaughter of Simeon and Dona Maier who has won numerous storytelling events with the Real Story of the Three Little Pigs "Maple Syrup Edition."

The 1996 Fall Tour will be held on Saturday, October 18th, 1996 following the 1996 National Meetings of the NAMSC and IMSI which will be hosted by the Michigan Maple Syrup Association in Lansing, Michigan on October 15–17, 1996.

FROM NOVA SCOTIA

Nova Scotia would like to take this opportunity to thank Ontario for a real good convention—a job well done.

Nova Scotia's annual Maple Producers Association meeting was held January 20, 1996 at the agricultural college in Turo.

The Association has finalized plans for the Annual Maple Festival Suppers.

I hope everyone had a joyous and peaceful holiday and the jolly old gent found everyone healthy and ready for this maple season.

Sincerely,
Avard Bentley
Vice-President

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USDA STATISTICAL UPDATE

By Aubrey R. Davis
October 23, 1995
North American
Maple Syrup Council
Kingston, Ontario, Canada

The National Agricultural Statistics Service (NASS) is one of 29 agencies of the USDA. This is down from 43 agencies the last time I addressed this conference just a year ago. The final steps to the major agency changes should be in place now. They were to be effective the first of this month. We rode the waves of rumors, but essentially remained unchanged, which so far is good news for your industry. Our overall mission is to provide the official USDA estimates for agricultural commodities in the federal estimating program. Next week I will attend a meeting in Philadelphia where changes to our estimating program will be discussed. Our recommendation was to keep the maple syrup program unchanged.

Our local address and phone number are the same (P.O. Box 1444, Concord, NH 03302-1444; phone — 603-224-9639). We have an E-Mail address (**NASS-NH@ag.gov**) that can be used to contact our Concord office. Some of our publications are now on the Internet through out Washington, DC headquarters. All of our national publications are available on the Internet, which includes the maple syrup estimates in the June Crop Report. The best Internet address to use at this time is **http://www.usda.gov/nass/**.

Since January 1995 we have a new person responsible for our maple syrup estimating program. Sharon Slayton is a very capable statistician who is a fast learner and will make improvements in the quality of the estimates as she learns the industry. I have been very pleased with her sincere interest in the maple program.

Many thanks to the hundreds of producers in all 10 states who answered our questionnaires by mail and telephone. The 78.9 percent New England response was great! We try not to become a nuisance, but without your help, we and you (the industry) do not have an estimating program. The survey results are always released in the June Crop Report sometime between the 9th and 12th of the month. Our New England release includes the estimates for all states in the program, with a goal of providing all the data that is published at the national level. The data published by each state varies according to their local program. You should contact your local State Statistician for a free maple syrup release if you are among the 10 states in the estimating program.

This is a good time to mention our regulations governing confidentiality of producer data. We are bound by law to protect the confidentiality of individual producer reports, including name, address, phone number and any information we obtain on the operation. We must publish the data in such a way that individual operations will not be disclosed or we must obtain written permission from the producer if a single operation could be identified. There is one exception —we are allowed to assist the Census Bureau in building a list of farms ➳

across the nation. This only includes name, address, phone number, SSN/EIN and type of farm. NASS and the Census Bureau are also exempt from the Freedom of Information Act (FOIA). Many people think they can call and obtain access to any information they desire on the basis of the FOIA. This is not true for NASS and Census Files on private farming operations. All requests for information under the FOIA are to be cleared by our Deputy Administrator in Washington, D.C. before any data are released.

It is very important that the Census Bureau have a good list of maple operations for the 1997 Census of Agriculture since maple will likely be reclassified as agricultural and included on the next census questionnaire. Remember that the Census results will be the only source of county data for the 10 states in the federal estimating program. Unless there is a disclosure problem, Census results will also be published for the remaining states where maple syrup is produced, but are not in the federal estimating program.

This is the second year there is enough history to generate a chart that includes all 10 state's production. The year to year relationships remain about the same. Vermont, New York, Maine, and Wisconsin are normally the top four producers. The New England office is responsible for 5 of the 10 states in the program. The United States maple production in 1995 totaled 1.1 million gallons, down 17 percent from a year ago. The only state recording an increase in 1995 was Maine. I believe Bob Smith has obtained an updated number from the Maine Department of Agriculture that will be the basis for a downward revision in 1995 Maine production next spring.

In 1995, the total value of maple syrup in the United States was $25.5 million, down 21 percent from 1994. This is due primarily to lower production, (down 17%), but the overall $1.10 drop in price was also a factor.

It seems that 1995 was a very

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unusual season where the elements just did not cooperate to produce a decent sap flow. Most of the sap that did flow produced dark syrup. The low sugar content led to a syrup-to-sap ratio of 46:1 in New England, New York reported 47:1, while Wisconsin had near normal 38:1. Some common crop comments reported by producers from Maine to Michigan during the spring survey were "too warm, low sugar, short season, crazy season, no snow, did not tap, dark syrup, worst season in 25 years."

The season started about a week earlier than the historic average, but varied greatly in length. Some states went longer than other years, perhaps hoping to get a good run before giving up. Others had a shorter season.

The preliminary average United States price for 1995 maple syrup was $23.30 per gallon equivalent, down $1.10 from 1994. Lower production and lower overall grade, because of the dark color, led to the reduced total crop value. Individual state's prices ranged from a high of $42.50 in Connecticut to $14.50 in Maine.

In the national report, the gallons of maple syrup sold as wholesale and bulk are combined. However, the price for each is separated by type of sale. As would be expected, the retail share of the market received the highest price. Earlier I talked about Connecticut's high average price and

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Maine's price at the other end of the spectrum. It should be obvious that Connecticut's proximity to a large urban area gives them the greater marketing opportunity. Maine is largely a very rural state with a relatively low population base. This forces most of their production into the bulk market, particularly the syrup coming from the norther regions of the state.

We now have 3 years of price data for the 10 states in the program. There has been considerable consistency among the yearly state prices in each of the three markets (retail, wholesale and bulk) for maple syrup. Other than Wisconsin, retail prices are clustered from about $38 to $45. Wisconsin is at the $30–$31 range. The wholesale prices show more variation in total range, but other than Michigan, the change across the three years is consistent. Connecticut is excluded from the bulk price to prevent disclosure of individual operations. Again, Michigan shows more variation from one year to the next with the pattern being very similar to the wholesale price. The 1993 dip in the Michigan price was due primarily to dark syrup.

Although Connecticut has the highest percent sold in the retail market at the highest price, their 1995 production totaled 7000 gallons, with about 6000 sold retail. Only a third of Vermont's production goes directly to the retail market, but this was over 120,000 gallons, a low year for them. I think it is interesting to note that 50 percent of the New England production is sold retail.

Thank you for the invitation to your annual meeting. I thoroughly enjoy the uniqueness of the maple syrup industry and I look forward to serving you in the future.

NEW HAMPSHIRE SUGARHOUSE FEATURED ON DISCOVERY CHANNEL

Pease's Scenic Valley Sugarhouse in Orford, NH will be the subject of a sugaring documentary which was put together last sugaring season.

The Discovery Channel will air the documentary on February 20th, April 9th and May 28th 1996.

THE IMPORTANCE OF MAPLE SYRUP FINISH POINT

By Randy Heiligmann
Associate Professor and
State Forestry Extension Specialist
School of Natural Resources
The Ohio State University

Finish point for maple syrup is the density at which we stop the evaporating process that converts maple sap to syrup. We have reduced the amount of water and increased the density of the liquid to the point defined as "finish syrup." To market good quality syrup for maximum profit, it is important to understand finish point and to finish correctly.

Brix and Baume scales for measuring syrup density

Maple syrup density is most commonly measured and expressed using one of two scales: the Brix scale or the Baume scale. The Brix scale is an expression of the density of the syrup as if all the solids in the syrup were sugar. For example, a statement that the syrup is a 66 degree Brix implies that the density of the syrup is as if it contained 66 percent sugar solids. "Degrees Brix" is a good index or measure for syrup density because approximately 98 percent of the solids in maple syrup are sugar (and most of these are sucrose). Because of this, a good approximation of the weight of sugar in maple syrup can be made by multiplying the weight of syrup by its density in degrees Brix and dividing by 100. For example, 100 pounds of syrup with a density of 66 degrees contains essentially 66 pounds of sugar.

The Baume scale for measuring syrup density relates the density of the syrup to that of a salt solution. The "points Baume" reading for a particular syrup does not directly translate into the solid content of the syrup. However, either the Brix or the Baume scales are suitable for measuring syrup density. Tables exist to convert between the two scales (See pages 85-86 in the *Maple Syrup Producers Manual, 1976 edition.*).

Why finish point is so important

Within limits the character of syrup each producer makes is a matter of individual preference. We produce a natural product within which there certainly is room for individual variation in syrup characteristics such as flavor, color, and amount of body. We must, however, be aware of the effects of finish point on syrup characteristics.

Most of us would agree that good quality maple syrup has a finish point between 66 degrees and 67 degrees Brix at 68 degrees F, or between 35.6 and 36.1 points Baume at 68 degrees F. (For consistency, all references to Brix and Baume densities in this article will be at 68 degrees F.) Producing syrup with a finish point substantially above or below this range will significantly reduce the quality of the syrup and result in less profit.

There are three concerns in producing syrup with too high a finish point. First, sugar levels above 67 degrees Brix will not stay in solution

indefinitely, but will precipitate over time reducing syrup quality.

Second, finishing syrup too high produces a thicker, more viscous syrup. As finish point is increased from 66 degrees to 67 degrees Brix viscosity increases 25 percent; as it increases from 67 percent to 68 percent Brix viscosity increases another 27 percent. The result of these finish point increases is to produce a syrup which has more body and feels smoother. This increased smoothness results in a sweeter taste being perceived than the small sugar increase would cause. Depending on the customer's preference, this effect may be positive or negative. It is usually positive. In fact, many producers intentionally finish their retail syrup at a slightly higher finish point than their wholesale syrup to take advantage of this characteristic.

Third, finishing syrup with too high a sugar content utilizes sugar which could be used to produce additional syrup. For each one degree Brix added to the finish point above 66 degrees, one less gallon of syrup is made for each 66 gallons of syrup produced. For example, if you made 66 gallons of maple syrup finishing at 67 degrees, you could have made 67 gallons of syrup from the same amount of sap had you finished at 66 degrees. As another example, if you made 66 gallons of maple syrup finishing at 68 degrees Brix, you could have made 68 gallons of syrup with the same amount of syrup finishing at 66 degrees. This means that for every degree Brix you finish above 66, you lose income equivalent to the price of a gallon of syrup for every 66 gallons you made.

As an example, if you charged $30 per gallon and made 66 gallons of syrup finished at 67 degrees Brix, your gross income would be $30 x 66 equals $1,980. If you finished at 66 degrees Brix, the same amount of sap would produce 67 gallons of syrup, which, at $30 per gallon, would be worth $2,010.

On a larger scale, if you charged $30 per gallon and produced 462 gallons of syrup finished at 67 degrees Brix, your gross income would be $13,860. If you finished at 66 degrees Brix, the same amount of sap would produce 469 gallons of syrup worth $14,070, or $210 more.

Finishing syrup at too low a density can also produce undesirable results. First, maple syrup finished below 66 degrees Brix (or higher in some areas) is not dense enough to qualify as maple syrup.

Second, syrup finished much below 66 degrees Brix does not have as good a storage or keeping quality and is more likely to spoil.

Third, the lower finish point will produce a less viscous syrup. Syrup finished at 65 degrees is 19 percent less viscous than syrup finished at 66 degrees Brix; syrup finished at 64 degrees Brix is 34 percent less viscous than syrup finished at 66 degrees Brix. Lower viscosity syrup is thinner and tastes weaker and less sweet, resulting in poorer consumer acceptance.

Commonly used methods for measuring syrup density

It is very important, then, that we be able to measure accurately and

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finish syrup at the desired density. There are a number of methods for determining when hot or cold syrup is at the desired density. Three methods commonly used for determining the finish point of hot syrup are boiling point elevation, hydrometer, and hydrotherm.

The easiest method to use for determining finish point and from a practical standpoint the most dependable is boiling point elevation. This method is based on the principle that the boiling point of a sugar solution increases as the sugar concentration increases. Maple syrup at a density of 66 degrees Brix boils at 7.1 degrees F above the temperature of boiling water; syrup with a density of 67 degrees Brix boils at 7.5 degrees F above the temperature of boiling water. With this method it is necessary to determine the temperature of boiling water and not assume it is 212 degrees F. It is not uncommon for the boiling point of water to vary several degrees and an error of one degree can result in an error in finish density of 3 to 4 degrees Brix. In practice, the boiling temperature of sap can be used as a very good measure of the boiling point of water since the low quantity of sugar in sap has an extremely small effect on the boiling temperature. A variety of different kinds of thermometers are manufactured for use in finishing maple syrup.

Many producers determine finish point by "hot testing" using a hydrometer. Hydrometers measure the density of syrup by the depth at which they float in the syrup. This depth is a result of not only the density of the syrup, but also its temperature. When boiling syrup is sampled in an hydrometer cup, its temperature begins to fall quickly. If this technique is used, it is important that the measurement be taken as quickly as possible while still allowing the hydrometer time to come to equilibrium in the cup. For best results, the temperature of the syrup should be above 211 degrees F, the higher the better. If the temperature is allowed to fall too much, the syrup will be read as more dense than it really is, resulting in a syrup with too low a sugar content.

The density of hot syrup can also be determined using a hydrotherm, a special hydrometer that adjusts the finish point measurement to the temperature of the syrup. When using this instrument, it is important to allow sufficient time (usually 30 to 40 seconds) for the hydrotherm to warm or cool to the temperature of the syrup. One disadvantage of this instrument is that, since it does not contain a calibrated scale, it does not indicate whether the syrup is too dense or too thin.

The density of cold syrup can be determined by weight, refractometer, or hydrometer. Weight is a good way to determine whether the required amount of syrup is in a package, but is not a good way for a producer to determine syrup density. This technique requires more accurate determinations of temperature, volume, and weight than most of us have equipment and/or time to measure.

Refractometers are optical instruments that measure the density of syrup or other liquids by the refraction of the light rays passing through

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them. The density of the syrup is read directly from a scale seen in the eyepiece of the refractometer. While costing between $300 and $400, refractometers are excellent tools for determining cold syrup density. It is important that they be calibrated properly and cleaned when used.

Six steps for correct use of a hydrometer

The hydrometer is the most common method to use for determining the density of cold syrup. The hydrometer is much less expensive than a refractometer, usually between $12 and $20, and is quite accurate if it is properly calibrated and used correctly.

The following steps are important in the correct use of a hydrometer:

1. Fill the hydrometer cup to the top with syrup. The cup should be deep enough to allow free vertical movement of the hydrometer (about as deep as the hydrometer is long and one and one-half times as wide as the hydrometer bulb).

2. Be sure the hydrometer is clean and dry (see discussion below).

3. Place the hydrometer in the syrup in such a way that the hydrometer does not submerge in the syrup. If the hydrometer submerges, some of the syrup will stick to the stem of the hydrometer. This will increase its weight and cause it to float deeper in the syrup, resulting in a reading that is ➳

less dense than the syrup actually is.

4. Allow about 30 seconds for the hydrometer to settle. If the hydrometer is read before it settles, it will be floating too high in the syrup and will read the syrup denser than it actually is.

5. Read the hydrometer scale straight across level with the top of the syrup. Do not read the capillary rise up the sides of the hydrometer stem.

6. Adjust the hydrometer reading for the temperature difference from its calibrated temperature (usually 68 degrees or 60 degrees F) which is printed on the stem of the hydrometer. If this adjustment is not made, a temperature above the calibrated temperature will result in too low a density reading. A temperature below the calibrated temperature will result in too high a density reading.

In Closing

Over the years our experience has been that new hydrometers are usually accurate. Two important sources of loss of accuracy are slippage of the scale paper and deposits on the hydrometer. To guard against unknown slippage of the paper scale, you may wish to mark the location of the top or bottom of the paper on the bottom of the storage box or on a piece of cardboard, or record a measurement of its distance from the end of the stem or bulb.

Mild deposits can be removed from hydrometers, using water (softened seems to work best) and a teflon pan scrubber. Stubborn deposits may require hot water or sap, or a mild acid solution, such as vinegar, along with the teflon pan scrubber.

Whatever method or combination of methods you choose to determine finish point or finnish density, perform them carefully. Selecting the correct finish point and accurately determining it are critical to producing quality syrup and earning maximum profit.

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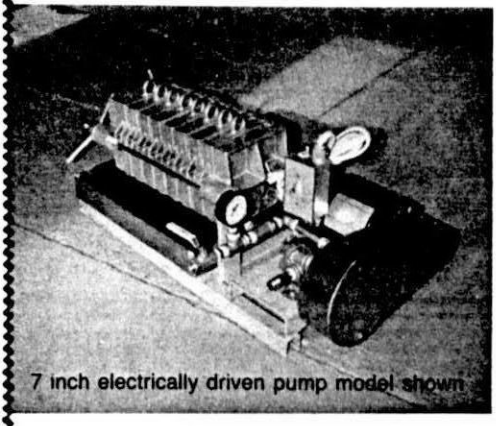

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PROCEEDINGS OF 1995 NAMSC MEETING AVAILABLE

The proceedings from the 1995 North American Maple Syrup Council meeting held in Kingston, Ontario are available.

They can be ordered through Ken McGregor, secretary of the Ontario Maple Syrup Producers Association for a cost of $10.00 each, which includes postage.

The proceedings include a summary of the technical session topics and a summary of the business and marketing sessions. It also includes an abstract of the poster exhibits.

Order single copies from Ken McGregor, RR 6, Strathroy, Ontario, Canada N7G 3H7. Bulk rate is available through David Chapeskie at 613-258-8302.

THE FIRST TEN YEARS

A second printing of The First Ten Years is available. It is a condensed rendition of selected material taken from the first ten years of the National Maply Syrup Digest. A grest source of the early history of both local, state, and industry references from January 1962 to October 1971. The price is $10.00 of which $5.00 is donated to the American Maple Museum in Croghan, New York. For a copy of the book, send $10.00 to Russ Davenport, RFD #1, 111A Tower Road, Shelburne, MA 01370-9670.

MAPLE GOODIES

MAPLE HERMITS

1 cup soft shortening
2 cups Maple Syrup
4 eggs
1/4 cup strong coffee
2 cups seedless raisins
1 cup chopped nuts
4 cups flour
1 tsp. salt
1 tsp. baking soda
1 1/2 tsp nutmeg

Heat oven to 375 degrees. Combine shortening, syrup and eggs. Beat until fluffy. Stir in coffee, raisins and nuts. Sift flour, salt, soda and nutmeg together into first mixture and stir to blend. Drop by rounded teaspoonful on greased cookie sheets. Bake 10-12 min. or until set. Yields 9 dozen.

MAPLE PECAN SQUARES

1 1/2 cups flour
1/4 cup brown sugar
1/2 cup margarine
2/3 cup brown sugar
1 cup Maple Syrup
2 eggs beaten
2 T. flour
1/4 tsp. salt
1/2 tsp. vanilla
1 cup chopped walnuts or pecans

Combine flour, 1/4 cup brown sugar, and butter. Mix with fork until consistency of corn meal. Press into a 9 x 13 pan and bake 15 min. at 350 degrees. Combine 2/3 cup brown sugar and maple syrup in small saucepan, simmer 5 min. Pour over beaten eggs slowly, stirring constantly. Stir in remaining ingredients except nuts. Pour mixture over baked crust. Sprinkle with nuts and bake at 350 degrees for 20-30 min. Cool in pan. Cut into bars.

MAPLE SYRUP FUDGE

1 cup Maple Syrup
1 cup granulated sugar
1/2 cup milk

Mix maple syrup, sugar and milk in a large saucepan. Cook slowly to a soft ball stage (235 degrees). Stir frequently, but not continuously. Remove from heat and cool to 120 degrees. Stir until it is creamy and has lost its gloss. Pour immediately into a greased 8 x 8 pan. Cut into squares when nearly cold. Variation: 1/4 cup chopped nuts may be added just before final stirring.

MAPLE WALNUT PIE

Prepare a 8" pie shell, baked only 5 min. at 425 degrees.

3 eggs
1 cup Maple Syrup
1/4 tsp. salt
1 cup chopped walnuts

Beat the eggs until light and frothy. Add maple syrup, walnuts and salt, stirring until thoroughly mixed. Pour into the half-baked pie shell and bake 30-35 min. at 350 degrees.

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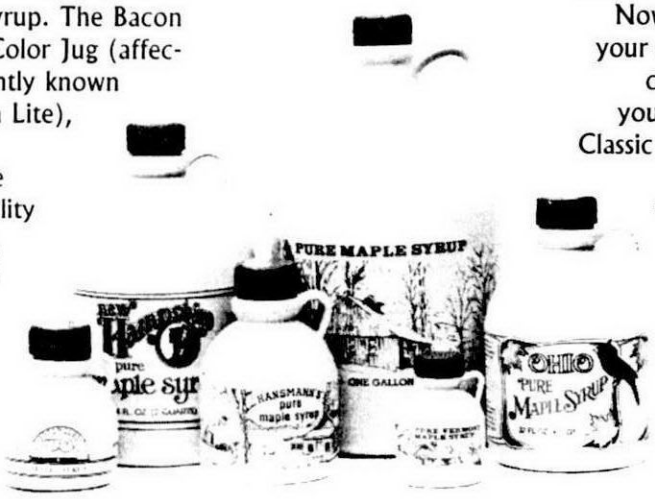

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1996 SAP PRICES

A lot of people have requested that we publish sap prices. What I have found is that sap prices vary greatly depending upon the retail price of syrup. The retail price of syrup in the Northeast is higher than in the Midwest, hence the price paid for sap is higher in the Northeast. Listed below are sap prices being paid by SOME producers.

Remember these prices are for sap delivered to the sugarhouse.

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

sugar	$/gal.	sugar	$/gal.
1.50	.105	3.60	.411
1.60	.124	3.70	.425
1.70	.143	3.80	.440
1.80	.159	3.90	.453
1.90	.174	4.00	.467
2.00	.190	4.10	.480
2.10	.203	4.20	.495
2.20	.217	4.30	.509
2.30	.232	4.40	.522
2.40	.245	4.50	.536
2.50	.259	4.60	.550
2.60	.272	4.70	.564
2.70	.287	4.80	.478
2.80	.301	4.90	.591
2.90	.314	5.00	.606
3.00	.328	5.10	.619
3.10	.342	5,20	.633
3.20	.356	5.30	.647
3.30	.392	5.40	.661
3.40	.383	5.50	.675
3.50	.398		

SOIL ACIDIFICATION AND SUGAR MAPLE DECLINE IN NORTHERN PENNSYLVANIA

By William E. Sharpe, Professor of Forest Hydrology
and
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School of Forest Resources
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The Pennsylvania State University
University Park, Pennsylvania

Introduction

Sugar maple (*Acer saccharum* Marsh.) on hundreds of thousands of acres in northcentral Pennsylvania is suffering from growth decline and mortality. The specific cause(s) of this decline have not been identified. Affected stands exhibit high mortality after progressive crown die-back that may continue for 10–15 years prior to tree death. The decline of individual trees appears to be irreversible. The forest floor in affected stands is usually colonized exclusively by hay-scented fern which competes with sugar maple seedlings for light, moisture, and nutrients and inhibits their development. Sugar maple stands at higher elevations appear to be the first affected while lower elevation trees exhibit little crown deterioration and mortality. Similarly, sugar maple on glaciated soils are not yet reported to be declining.

Northcentral Pennsylvania receives some of the highest loadings of hydrogen ion, sulfate, and nitrate in North America from atmospheric deposition. Typically, deposition is greatest at higher elevations and the residual soils weathered from sandstone at higher elevations are stonier, more acidic, and thinner than the colluvial soils at lower slope positions.

The purpose of this study was to determine if soil chemistry, foliar chemistry, and diameter growth were significantly different between sugar maple stands in decline (as indicated by mortality) and those not in decline.

Study Area

The study area is part of the Susquehannock State Forest located in southern Potter County, Pennsylvania. Ten sugar maple stands, all located within a 10 km^2 area along Rock Ridge Road, were chosen for study. Five declining stands, with sugar maple mortality of 47 to 79 percent, were located along the ridge-top at elevations around 700 m. Five non-declining stands, with sugar maple mortality less than 10 percent, were located at elevations around 560 m. Mortality was assessed based on the mean number of dead sugar maple trees on three 0.1 ha plots within each stand.

Soils in the non-declining sugar maple stands were classified predominantly as channery silt loams from the Lackawanna Series. The declining

stands were mapped primarily as stony, loamy sands and silt loams from the Leetonia, Wharton, Bath, and Nolo Series.

Methods

Soil samples were obtained from the face of hand-excavated shallow soil pits using plastic spoons and plastic gloves. Descriptions from the soils mapped on each site were used to determine soil profiles in the field. Composite samples were collected from the O1, A, and B-horizons in each soil pit. This article reports primarily on data from the A-horizon. A total of 15 soil samples were collected near living sugar trees in each stand.

Foliage samples were collected from the lower branches of five dominant trees in each stand with pole shears. Trees were selected in close proximity to the soil sampling sites. Ten leaves were removed from each branch and composited for analysis. Two increment cores were also obtained from each of the five trees with a 4-mm increment borer. Tree diameters were measured at breast height with a diameter tape. Tree ring widths and basal area increments (BAI's) were measured for each tree core using a tree ring scanning device and ring widths were recorded using the MacDendro™ computer program.

Soil Chemistry Results

The pH of the soil in the declining stands was lower than that of the non-declining stands but the difference was not statistically significant. Exchangeable Ca and Mg were both significantly lower in the declining stands and these differences were consistent among the ten stands. Base saturation percentages were also lower on the declining stands but both the declining and non-declining stands had A-horizon base saturation values less than 10 percent. Base saturation values for forest soils of less than 10 percent have been reported to be problematic with respect to aluminum availability. Exchangeable Al was higher in the declining stand soils and the Ca:Al molar ratio was significantly lower and at a critical level (0.66) in these stands. Results of samples collected from the organic and B-horizons were similar to those reported here for the A-horizon.

Foliar Chemistry Results

Results of the chemical analysis of sugar maple foliage followed closely those in the soil. Ca and Mg were significantly lower in the declining vs. non-declining stands and were well below normal minima (deficient). In addition, foliar Ca:Al ratios were significantly higher for the non-declining stands. Foliar K concentrations were also significantly lower in the foliage of sugar maple trees in declining stands, but they were within the range of reported values.

Diameter Growth Results

Diameter growth of sugar maple trees in both declining and non-declining stands has decreased steadily since about 1970. However, the average diameter increment of sugar maples from declining stands has generally been lower than that of trees in non-declining stands. These diameter growth data are consistent

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with those reported in a recent study of individual declining and non-declining sugar maples in this same area and suggest that reductions in diameter increment precede crown deterioration and mortality in sugar maple. Monitoring of diameter growth trends may present an early warning of impending decline and allow for intervention prior to serious individual tree or stand damage, although correlating diameter growth trends at breast height with decline has proven to be elusive in studies involving other tree species.

Summary and Conclusions

A comparison of soil and foliar chemistry between five severely declining and five non-declining sugar maple stands revealed significantly lower Ca, Mg, and Ca:Al ratios in the soils and foliage of the declining sugar maple stands. Concentrations of Ca in sugar maple foliage were significantly correlated with exchangeable Ca levels in the A-horizon soils at these sites. Diameter growth analysis indicated a decreasing trend in basal area increment growth for both declining and non-declining stands over the past 25 years.

It would appear that soil acidification may be a predisposing factor in the observed widespread decline of sugar maple in northern Pennsylvania. Sugar maple stands currently showing no signs of crown deterioration or mortality may also be declining and may begin to exhibit these symptoms in the future as soils continue to acidify in this region. »➤

ACKNOWLEDGMENTS

Funding for this research was provided in part by a grant from the North American Maple Syrup Council and by the School of Forest Resources and the Environmental Resources Research Institute of the Pennsylvania State University.

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705-924-2057

29TH ANNUAL VERMONT MAPLE FESTIVAL
April 19, 20 and 21, 1996
St. Albans, Vermont
Contact: Larry Myott - PO Box 53010, Burlington, VT 05403
(802) 656-5433

AMERICAN MAPLE MUSEUM OPENING DAY CEREMONIES
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Croghan, New York
Contact: Les Lyndaker, Box 264, Croghan, NY 13327
315-346-6060

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Contact: Lisa Campbell - RR 3, Box 3050, Salem, NY 12865
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FOR SALE: 5' X 10' Evaporator, Flue Pan, Hood and Preheater, 2 Burners, Used — Like New. Reed H. Burman, Thompson, PA *717-756-2914.*

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DEADLINE FOR NEXT ISSUE IS MAY 1, 1996

REMINDER
Research Proposal Guidelines

Research projects may be submitted for consideration based on the following guidelines:

(1) Proposals must be received no later than July 1, 1996 for consideration in 1996. Proposals received after that date will be considered in 1997.

(2) Proposals shall be complete and detailed in content. However, proposals shall contain a short concise cover statement briefly explaining cost, scope, objective, procedure, and anticipated value to the maple industry.

(3) Proposals shall contain detailed estimated cost breakdown, within the detailed report.

(4) Proposals shall be submitted with a minimum of forty (40) complete copies.

(5) Proposals must contain a complete reference section listing and explaining any similar or duplicating research previously accomplished. Proposals for duplication of previously completed research must contain detailed explanations of why such duplication is warranted.

(6) Results or progress of funded projects must be presented annually at the convention of the NAMSC and must be published in the Maple Syrup Digest as soon as possible after completion.

(7) Send proposals to: Lynn H. Reynolds, Research Committee, North American Maple Syrup Council W10010 Givens Road, Hortonville, WI 54944.

Remember: July 1 Deadline.

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