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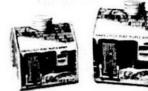
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MAPLE SYRUP DIGEST

Official publication of the NORTH AMERICAN MAPLE SYRUP COUNCIL

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GREETINGS FROM YOUR PRESIDENT



The season has been over for many weeks here in Connecticut. It was a very short season and we made very dark syrup. As I have talked to many producers in the southern part of the maple region. It seems like a lot of dark syrup was made. Some of the northern parts had a good year and were able to make some light syrup. The overall production of the whole maple syrup producing region is close to normal. The bulk price of syrup is up and expected to remain strong for the rest of the year.

The steering committee of the Maple Syrup Information Center has continued to keep in contact with one another. It seems like there was very little interest in the lead during the season. I think this was due to the fact that the steering committee was able to manage the situation in a proper way.

In this issue of the digest you will see a report by our chairman Dave McLure. I appreciate his hard work, along with the rest of the committees. Hopefully you will continue to support our efforts.

We are looking forward to summer and the many tours and meetings. Hopefully we will be able to attend one or more.

Your President, Richard P. Norman



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THE MAPLE SYRUP INFORMATION CENTER The Industry's Response to Concerns about Lead

Last October the maple industry received a shock when the State of Vermont ordered the removal from sale of a small amount of maple syrup due to concern over lead contamination. The resultant publicity was spread throughout the U.S. and eastern Canada by newspaper wire services, CNN TV, National Public Radio, and others.

This publicity and the questions raised were building just at the time the North American Maple Syrup Council (NAMSC) and the International Maple Syrup Institute (IMSI) were holding their joint annual meeting in Springfield, MA. On October 21, 1994, the Directors of these two groups along with others concerned in the industry established the Maple Syrup Information Center (MSIC) to respond to this crisis which threatened the good name and image of pure maple syrup.

The steering committee of the MSIC is:

Dave McLure, McLure's Honey & Maple Products, Inc., Chairman Larry Myott, UVM Extension Maple Specialist, Treasurer Luc Lussier, The Maple Sugar Producers of Quebec, Inc. IMSI President Richard Norman, Connecticut Producer and NAMSC President David Marvin, Butternut Mountain Farm, Inc., Vt. Maple Industry Council Chairman Jones Sheehan, Regroupement for the Marketing of Maple Syrup of Quebec Bill Callahan, Maple Grove Farms of Vermont, Inc.

Our actions thus far have been directed at the following:

- 1. Minimize the damaging publicity—Crisis Management
- 2. Gather factual information on lead and maple syrup
- 3. Work with government at all levels to develop rational policies concerning lead in maple syrup to protect the public and the industry
 - 4. Initiate and coordinate research on sources of lead and removal methods
 - 5. Communicate with the industry
 - 6. Raise Funds to support these efforts

The work done to date has consumed hundreds of manhours by committee members, outside professionals, and other industry members, as well as approximately \$60,000 (US). A brief summary of our efforts in each of the six areas above follows:

- 1. CRISIS MANAGEMENT: Immediately upon formation, the steering committee hired Burson-Marsteller, the world's largest public relations and crisis management firm. Their expertise and experience in similar situations (e.g. Alar) was invaluable in focusing our efforts. They established the MSIC 800 telephone number to handle media inquiries, travelled to Vermont to help us plot strategy, and gathered information about what was being written and said about this issue throughout the country.
- 2. GATHER FACTUAL INFORMATION: In the first 48 hours after formation the committee also engaged Dr. Jill Snowdon of SGA Associates in Maryland. Her one line resume pretty much sums up what she did for our industry: "Solving problems in food safety and environmental quality with expertise in Science, Government, & Agriculture". She helped us assess the situation from a scientific and regulatory point

of view, drawing on her background in toxicology and years of experience working on issues exactly like our. Her work for our industry is summarized in a research report that she prepared for us for distribution to government, scientific, and industry titled: "Maple Syrup Purity: Managing the Issue of Lead Residues". Factual information was also received from numerous other sources, both US and Canadian.

3. RATIONAL GOVERNMENT POLICIES: Personal meetings with FDA, Ag. Canada, State, and Provincial regulators were conducted by committee members and Dr. Snowdon to help shape government actions. Where needed (e.g. Vermont), we worked very closely with actions. Where needed (e.g. Vermont), we worked very closely with the government to influence their actions to protect our industry.

4. RESEARCH AND TESTING: Both at the Federal level and the state/provincial level, numerous government agencies have tested and are testing maple syrup for lead. The Quebec government has initiated a major research project as has the

University of Vermont Proctor Lab.

5. COMMUNICATIONS: Our initial communications efforts were directed at the media and government agencies, to prevent harmful publicity and adverse government actions. While these are still happening, we also are, and have been, sharing what we have learned with the industry. Some examples of these actions are the articles in agriculture publications, and a symposium held in Burlington Vermont in January. At that meeting there were over five hours of presentations by a wide range of scientists, government regulators, and industry people, all sharing their knowledge on lead in maple syrup.

6. FINANCES: To date, the MSIC has spent \$60,000 on the projects described above. The steering committee is very aware that this is a large sum of money for a

small industry such as ours. Our contributors to date are:

North American Maple Syrup Council International Maple Syrup Institute

Regroupement for Maple Syrup — Quebec

Maple Grove Farms of Vermont

Maple Sugar Producers of Quebec (COOP)

Shady Maple Farms (Heinz)

Federation of Quebec Maple Producers (Union)

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We need additional contributions to meet the obligations that we have already incurred, and to do any future work that may be required.

I appreciate all of the support that has been given to our efforts. Our committee is made up of diverse elements of our industry who do not always have common interests. However, on the issue of lead in Maple Syrup, we are united. This threat to our good name must be removed. We are working diligently to do that.

Dave McLure, Chairman

36th ANNUAL MEETING OF THE NORTH AMERICAN MAPLE SYRUP COUNCIL

Will be held October 21 to 25, 1995 at the Ambassador Hotel Convention Centre, Kingston, Ontario, Canada.

For reservations contact Hotel directly at 1-800-267-7880 — Council rate—\$84.00 Canadian per room (1 or 4 persons).

If planning on staying at the Hotel Saturday evening, book at least 4 to 6 weeks ahead. That weekend is Queen's University Homecoming.

Sunday, October 21, 1995 is a pre-convention tour to:

Kemptville College of Agriculture Technology

Visit the new Agricultural Technology Education Centre to tour maple projects and a 20 year old maple orchard

Tour of the Drummond Sugar Bush which has been operated by family since 1802, now using steam for all evaporation

Delta Foods International Ltd., Ontario's largest maple packers, state-of-the-art maple packaging line installed November 1994.

Annual meeting of North American Maple Syrup Council, International Maple Syrup Institute and Ontario Maple Syrup Producers Association will be a very important part of the conference event.

Important issues and business affairs of interest to maple producers from hobbyist to professionals, packers, suppliers and persons interested in maple will be discussed.

The program includes speakers on:

Creative Thinking and Marketing for the 1990's.

The Challenge of Change With the Radically Changing World — it is felt the next 10 years will change as much as the last 50 years

Media Relations — dealing with media to enhance business prospects
Cost of Production and Pricing of Maple Products

Tentative technical program will include such topics as filtration of sap and syrup, cleaning equipment, American Sweet Tree program, Maple Orchards in Ontario, use of steam for evaporation and finishing and sugar bush management. The technical program will be finalized later.

Anyone interested in more information or to be put on the mailing list to be sent out in late July, should contact:

Mr. Ken McGregor, Registration Chairman RR 6, Strathroy, Ontario Canada N7G 3H7

MYSTERIES OF MAPLE SYRUP FLAVOR

By Thomas L. Potter, Irving S. Fagerson and Jonas Goldsmith Department of Food Science, University of Massachusetts

During the concentration of maple sap by boiling, naturally occurring sap constituents are transformed to produce mixtures of organic compounds which are responsible for the flavor of maple products. The process occurs at the trace level in that only a very small portion of the sugars and other substances in sap are broken down chemically. Nevertheless, it is the principal means by which the unique and highly valued flavor and aroma of maple syrup is developed (Morselli and Feldheim, 1988). The sap itself is sweet but otherwise tasteless.

Investigations in our laboratory have shown that the flavor chemistry of maple syrup is highly complex (Potter and Fagerson, 1992). In a single sample of Grade A medium amber syrup we detected over 134 different compounds. Each contributes to varying degrees to the overall sensory phenomenon we recognize as natural

maple flavor.

Our studies also showed that the concentrations of certain flavor compounds varied widely between two commercial syrups of the same grade and produced in the same region. This lead us to the investigation whose results we report here. This report summarizes research undertaken to investigate how syrup flavor chemistry varies within grade in syrups produced in different regions and across grades for products obtained from a single sugarmaker.

METHODS AND MATERIALS

Syrup samples. A total of 29 grade A medium amber syrup samples were donated by NAMSC members. Each sample was commercially packaged and produced during the 1992 syrup season. In addition, one sample each of grade A light, medium and dark and grade B dark were obtained from the 1992 crop of a Massachusetts sugarmaker. All samples were stored at minus 10 degrees Centigrade until analysis.

Analysis. Samples were prepared for analysis by dilution to 7 degrees Brix with distilled-deionized water. They were then serially extracted in a separatory funnel with 3 aliquots of methylene chloride. Extracts were concentrated to 1 ml and analyzed by combined gas chromatography/mass spectrometry (GC/MS). GC/MS conditions were identical to those described by Potter and Fagerson, (1992).

RESULTS AND DISCUSSION

The concentration range of three flavor compounds are summarized in Tables 1 and 2. Chemical structures of these compounds are shown in figure 1. The compounds were originally identified in maple syrup in work conducted by the USDA in the 1960's and 70's (Underwood and Filipic, 1964; Underwood et al., (1969). Their contribution to maple flavor has also been well established in taste tests (Kallio, 1987; Belford et al., 1992).

As indicated in Table 1, cyclotene and furaneol, were found at much higher concentration in dark syrup grades. This trend was expected given the nature of the chemical reactions which contribute to the formation of these compounds. Gener-

Table 1. Concentration of selected flavor compounds in maple syrup by grade.

concentration (ppm)

| Grade | cyclotene | furaneol | vanillin |
|----------------|-----------|----------|----------|
| A light amber | 0.008 | 0.005 | 1.74 |
| A medium amber | 0.50 | 0.03 | 1.11 |
| A dark amber | 0.67 | 0.05 | 0.84 |
| B dark | 2.11 | 0.16 | 1.14 |
| | | | |

^aSyrup samples obtained from a Massachusetts' producer (1992 crop).

ically the process is known as "non-enzymatyic browning". In this process, certain sugars when heated in the presence of amino acids and/or under acidic or alkaline conditions are partially degraded. A whole range of compounds may be formed including cylcotene, furaneol and complex polymeric substances (Fagerson, 1969). The polymers have a characteristic brown color and are presumed responsible for color development in maple syrup.

As opposite trend for syrup vanillin content was observed (table 1). Its concentration was highest in the light "fancy" syrup grades. This data when combined with results obtained from sensory studies (Willits, 1966; Kallio, 1987) indicate that this compound is one of the main flavor attributes of the more highly valued "fancy" syrups.

Turning to the table 2 data, it is notable that the vanillin content of 29 samples of Grade A Medium Amber syrup was found to be highly variable. Indeed its concentration in some syrups was lower than sensory thresholds (Stahl, 1973; Belford et al. 1991). This may explain why some of light syrups are highly flavored while others

Figure 1

Vanillin

Table 2. Concentration of selected flavor compounds in 29 samples of Grade A Medium Amber maple syrup and reported sensory thresholds.

| concentration (ppm) | | |
|-------------------------------------|---|--|
| detection threshold ^a | recognition threshold ^a | range in syrups |
| 5.0 | 5.0-10.0 | 0.01-0.16 |
| 0.1 | 0.2-0.5 | <0.004-0.10 |
| 1.5 | 2.5 | 0.24-3.08 |
| | detection threshold ^a 5.0 0.1 | detection recognition threshold ^a 5.0 5.0-10.0 0.1 0.2-0.5 |

^aBelford et al., (1991).

have a flat or bland flavor. Among other considerations the lack of consistency in flavor intensity in light syrup may have contributed to the results of surveys which indicate that consumers prefer dark syrup (Belford et al., 1991).

This also leads to the conclusion that increasing the vanillin content may enhance consumer acceptance of "fancy" syrup. Several studies have shown that there is substantial unrealized vanillin formation potential in maple syrup (Underwood and Filipic, 1964; Belford et al, 1992; Potter and Fagerson, 1992). However, considerable uncertainty remains regarding the exact nature of the vanillin precursor materials and the manner by which vanillin formation potential could be best controlled.

Belford et al. (1992) have suggested that the main precursor of vanillin is vanillinglucoside (i.e. a vanillin molecule bound to a glucose). This is termed "bound vanillin". Further, they reported that vanillin in this form can be released into its free (active) form by enzymatic treatment of maple sap. They also suggested that vanillin

Coniferyl Alcohol

Vanillin

Table 3. Summary statistics: coniferyl alcohol and vanillin concentration in 29 samples of Grade A Medium Amber Maple Syrup.

| | concentration (ppm) | | |
|--------------------|----------------------|----------|--|
| | coniferyl alcohol | vanillin | |
| maximum | 3.08 | 2.81 | |
| minimum | 0.24 | 0.29 | |
| average | 1.02 | 1.08 | |
| standard deviation | 0.74 | 0.62 | |

content of maple syrup could be increased by treatment of sap with certain enzymes which are commercially available.

Their data are plausible but, whether bound vanillin is a common constituent of maple syrup remains in doubt. Parallel studies performed in this laboratory did not provide similar results. Simply, we did not detect any bound vanillin in two samples of maple sap collected from a commercial Massachusetts sugarbush. This presents the possibility that there are substantial regional differences in maple sap chemistry (Wisconsin versus Massachusetts).

What we did find is that nearly all syrup samples tested contained substantial quantities of coniferyl alcohol in free and bound forms (Table 1). Its structure and that of vanillin is shown in figure 2. Coniferyl alcohol is one of the main building blocks of lignin, the complex polymer which holds wood together.

In more than half the samples the coniferyl alcohol exceeded the vanillin concentration. The possible significance is that preliminary studies have shown that coniferyl alcohol is a vanillin precursor in maple syrup. Note the similarity in structure (figure 2). The rate of conversion appears to be a function of pH during the boil.

The implications of pH in this regard is not a new finding. Willits et al. (1966) reported that when vacuum concentrated sap was heated under pressure, the longer the heating time, the lower the syrup pH (more acid) and the greater the maple as opposed to caramel flavor. The data reported in table 1 above suggest that vanillin is predominant in the "fancy" syrup.

In our ongoing studies we are investigating the connection between pH, coniferyl alcohol, and vanillin in much more detail. Ultimately, we hope the data will explain why and how maple flavor varies depending on sugarbush characteristics, production and storage practices and other factors and in doing so help sugarmakers produce a consistent high-flavor product.

ACKNOWLEDGEMENTS

The work described in this presentation was made possible by grants from the North American Maple Syrup Council and the Massachusetts Agricultural Experiment Station. Use of the Facilities of the IMASS Department of Food Science was also essential to the completion of this work and is greatly appreciated. This work is

dedicated to the memory of Dr. Irving S. Fagerson, our dear friend and colleague who died suddenly in June of 1994.

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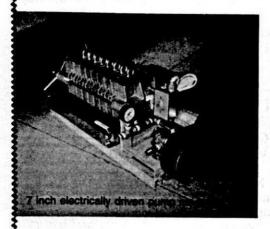
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MASSACHUSETTS NEWS

By Tom McCrumm

With the lack of snow and the prevalence of abnormally warm temperatures during the early winter in south-England, Massachusetts New ern maple producers were in a quandary as to when the season would start. A week of 60 degree weather in mid-January saw a lot of producers dragging out tanks into the woods and setting up tubing. It was sure a pleasure to put up in that kind of weather with no snow on the ground. Although more seasonal weather appeared in February, many producers tapped a week or more earlier than their usual date. Although these producers were able to catch a good early run in February and make some light amber syrup, many were cut short at the end of the season when the weather was perfect for sugaring.

The third week of March, which is usually the week of highest production in Massachusetts, saw daily temperatures in the fifties and sixties, and nightly lows in the thirties and forties. The big problem that week was the 6 days of continued overcast skies. If it had cleared off at night, we would have had a freeze, but with the cloudy skies, even the higher elevations only got "mini-freezes," where it would get

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down to about 30 degrees for only an hour or so. Lots of Grade B syrup was made that week, and although the weather improved later, it was difficult to bring the grade back up. That week of warm weather ended the season early for many producers.

The end of March and early April saw day after day of perfect sugaring weather-teens to low twenties at night, and mid to upper forties during the day. Those producers at higher elevations and those who "hung in there" took advantage of this fine weather and continued to make syrup, although much of it was dark amber. After a four day freeze-up in early April, the grade went back up to medium amber for some producers. A few producers were still boiling by April 14th, and although the color was still good, the flavor had gone by then. Across the state the production reports vary from 30% to 95% of a "normal" crop, with most producers reporting about a 50-60% crop. Overall Massachusetts produced about 35-40,000 gallons in 1995.

Our thanks to all of you who came to Massachusetts for the 1994 North American Maple Syrup Council meeting last October. We hope you enjoyed our hospitality.

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VERMONT MAPLERAMA 1995

The 1995 Vermont maple tour will be hosted in Chittenden County, in the heart of the Champlain Valley. Extension Maple Specialist Larry Myott reports that over 350 sugarmakers are expected to attend from as many as 14 different states and provinces.

The event will be hosted at St. Michael's College in Colchester on August 10, 11 & 12. Opening on Thursday evening with the trade show and welcoming reception, visitors will be able to get an advance start on their Vermont experience. The tours will be held on Friday and Saturday. Tours will include stops to production facilities

(sugarhouses) in the county, a visit to a large retail and mail order maple business (Dakin Farm of Ferrisburgh) and Vermont history (Shelburne Farms).

The annual banquet will be held on Friday evening at St. Michael's and the annual Bar-B-Q on Saturday afternoon. Once again the International Maple Syrup Contest will take place with producers competing in all three tables grades.

Complete Maplerama 1995 registration information will be mailed in June. Those who have attended in the last two years will automatically receive the registration packet. To be added to the mailing list, write to: UVM EXT., P.O. Box 53010, Burlington, VT 05405-3010.



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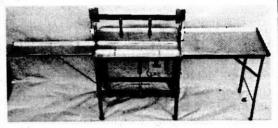




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AMERICAN MAPLE MUSEUM REPORT

By Haskell Yancey

At the time of the writing of this report (April), final plans for the Opening and Induction Ceremonies of the American Maple Museum in Croghan, NY are being completed. However, by the time you are reading it (June), the Ceremonies will already have taken place on May 13th.

In any case, a great deal of work is being done, not only by those directly involved in the museum itself, but also by the New York State Maple Association.

Once again, a major component of the day's activities will be the selection of this year's New York State Maple Queen. Because of the timing of this report, more information will have to be presented in a future Maple Digest. The New York State Maple Association is taking a larger role in this year's selection process and is bringing renewed enthusiasm to the festivities.

The other major portion of the ceremonies is the announcement and induction of the 1995 inductees to the Maple Museum Hall of Fame. This year the two people who are being inducted are very familiar to many in the maple industry. Both have served the maple industry at the state and local level as well as in national and international positions. Each has also served their communities in a number of capacities other than those solely related to maple syrup.

The first inductee is Wilson S. (Bill) Clark of Wells, Vermont. Mr. Clark has a long list of credentials, including being a past president of the North American Maple Syrup Council and the In-

ternational Maple Syrup Institute of which he was a co-organizer and charter member. He has also been involved with many agricultural and maple activities within Vermont.

The second inductee for the year is Lynn H. Revnolds of Hortonville, Wisconsin. Mr. Reynolds father, Adin Reynolds was inducted in 1979, thus becoming the first father-son combination in the Hall of Fame. He also has been a past president of the North American Maple Syrup Council and the International Maple Syrup Institute. At the present time he is Executive Director of IMSI. His activities also cover a vast spectrum of agricultural and maple organizations in Wisconsin.

Both of these individuals are very deserving of this honor and all of us can appreciate their efforts on behalf of maple syrup.

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I sit among the members, still I am a lonely guy.

Other new members sit there with me while you quickly pass me by.

But, gosh, you guys have asked us in and you talked of fellowship. You could just step across the room, but you've never made the trip.

Why can't you nod and say 'hello', or stop and shake my hand. Then go and join your friends. Now, that I would understand.

I'll be at your next meeting, too, on that you can depend. So, won't you introduce yourself? I want to be a friend!

Taken from the October, 1967 National Maple Syrup Digest.

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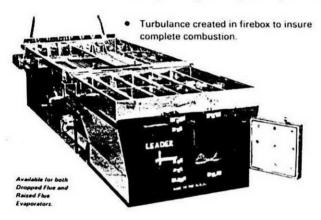
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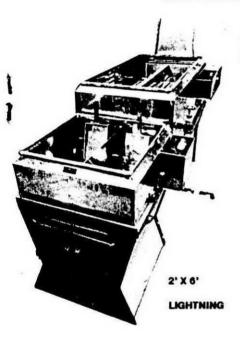
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IMSI BUSINESS

Well, another syrup season under our belts. Some good reports, some bad. Early reports indicate most of the Southern maple producing areas, not that great of a season with some exceptions. The Northern maple producing areas, generally from slightly below normal to an exceptional crop. As was the winter, so was it an unusual spring in regards to weather. Very unusual in most areas. But, all in all, the entire industry will probably end up with a normal crop. This is great news. Our surplus is essentially gone. The crop was good. The quality was excellent. We are geared to promote our quality product. Prices to the producer have gone up. The industry is in good shape. We now need to get to work and sell our syrup at a profit. Roll up your sleeves and let's get started.

A great step forward in cooperation has happened. The Regroupement and the IMSI have completed a cross-membership alliance. This means that representation of; all the Provincial and State Maple Associations, all major maple packers, all major maple producers, equipment manufacturers, equipment distributors and dealers, container manufacturers, Provincial and State Government Officials, and Canadian and U.S. Government Officials; shall now be conducting an open maple forum at the IMSI meetings four times per year. An effort is already underway to create a cross-membership alliance between the North American Maple Syrup Council and the ISMI. Thus, all International, National, Provincial, and State maple entities shall be duly represented at one table four times per year. A major-major step forward. A final comment on this subject, is an appeal to any maple packers, producers, equipment manufacturers, equipment distributors and dealers, container manufacturers, and other allied maple entities, if you are not a member of the IMSI, DO NOT GET LEFT OUT, join the IMSI NOW.

The IMSI is conducting inquiries into several areas of promotional efforts for 1995. The alliance with the Regroupement allows for more intensive promotional and public relations campaigns to be considered. Your support by membership will create a win-win situation for all of us.

I must mention that with the adulteration test by EUROFINS, we now are in control of this scourge on our industry. However, I warn against complacency. We need to properly finish our supplying the data base involved. A complete and accurate database will be the deciding factor in how effective we are in maintaining the integrity of our product. I ask all of you to push for proper documented collection procedures, and the timely submission of your pure maple samples, for the creation of a complete and accurate EUROFINS database. Don't let your guard down. We all worked too hard to get this far. We must carry through to the end result. I sincerely request assistance from Extension Personnel to help us collect and submit these samples per our agreement.

The IMSI Great Maple Brew-Off was conducted in Chicago on Saturday, March 18, 1995. A great maple promotion. A super opportunity for maple producers, with their own maple syrup, to create a variety of new products. The IMSI is considering making this an annual event. Let me hear from you if you want this International



competition continued. Listed below are the winners of this year's finest maple beer in the IMSI Great Maple Brew-Off:

Flight #1 - Maple Lagers & Wheat Beers

1st - Pete Whyte, Rolling Meadows, IL, Maple Lager

2nd - Karl Bremer, Lakeland, MN, St. Croix Maple Wheat

3rd — Rich Madole, Libertyville, IL, Maple Weizen

Flight #2 - Maple Light Ales

1st - Dave Marklund, Duluth, MN, Maple Pale Ale

2nd — Rich Madole, Libertyville, IL, Maple American Pale Ale

3rd - Not Awarded

Flight #3 — Maple Big & Scotch Ales

1st — Tim Artz, Lorton, VA, Smokey Maple Dew Barleywine

2nd — Jim Mauro, Arlington, TX, Scotch M(ale)ple Ale

3rd — Charles Well, Craftsbury Common, VT, Scottish Kingdom Export

Flight #4 — Maple Porters & Stouts

1st - Dennis Flaherty, Mishawaka, IN, Trans-Porter

2nd - Karl Bremer, Lakeland, MN, Maple Robust Porter

3rd — Dennis Flaherty, Mishawaka, IN, Right Thing Oatmeal Stout

Flight #5 — Specialty Maple What

1st — Rich Larsen, Midlothian, IL, Maple What Amber Sap Beer w/Cinnamon

2nd — Tom Keith, Evanston, IL, Maple Braggot

3rd — Tom Keith, Evanston, IL, Maple Syder

Flight \$6 — Maple What

1st - Rich Larsen, Midlothian, IL, Big Maple Sap Beer

2nd — Efrain Madrigal, Melrose Park, IL, Sherried Maple What

3rd — Rich Larsen, Midlothian, IL, Maple What Amber Sap Beer

Best of Show

1st — Efrain Madrigal, Melrose Park, IL, Sherried Maple What

2nd — Tim Artz, Lorton, VA, Smokey Maple Dew Barleywine

3rd — Rich Larsen, Midlothian, IL, Cinnamon Spiced Maple Sap Beer

A commercial: The IMSI is developing a whole spectrum of promotional items for the use of members and member associations. You can buy the following items from any IMSI corporate members or any IMSI Provincial or State Association member. Join and you too can proudly sell these promotional products: "Frost & Fire" — VHS Video (English or French) \$25.00; Sugar Making Aprons \$25.00; Lapel Pins \$3.00; Portfolios \$4.00; Hats \$10.00; Folders \$2.00; Pens \$2.00; and Cookbooks \$1.00; more items to come. All items have the IMSI logo, printing, and especially produced for IMSI member's promotional efforts. Please get behind this campaign. See your IMSI Members or Member Associations today.

On a personal note, I wish to extend my thanks to everyone in the maple syrup industry for the honor which has been bestowed upon me. I am referring to your

selection, for my induction into the Maple Hall of Fame, in Croghan, New York, on May 13, 1995. With total humility, I recognize the significance of this honor. And, I fully recognize that I did not achieve it alone. I have accepted this award with the spirit of sharing it with all of you. Your support and loyalty is all encompassing to me. I shall continue to serve you and the maple industry to the best of my ability. I am humbled. And, I sincerely thank you. *

Lynn Reynolds Executive Director

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| 40" x 12' King Evaporator with stainless pans, Ige. old, excellent \$5,500 | |
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NEWS FROM OHIO

By Tom Hoffman

As is customary, the Ohio Maple season began this January with the Maple Syrup Institutes being held in Mt. Gilead, Fredericksburg, and Middlefield. 1995 marks the 55th year for the Geauga County Institute of Forestry and Maple Syrup in Middlefield.

After a greeting by Ohio Maple Producer's Association President Bill Brown, Ture Johnson gave the NAMSC and IMSI updates from the past Fall's meeting in West Springfield, Massachusetts. Welcome news was received regarding the elimination of the syrup surplus of the past few years. Lynn Reynolds, Executive Director of IMSI, talked to those in attendance on the importance of joining and supporting

your state maple producer's association. Garth Atherton spoke on his experience with micro-pore filtration of sap and the importance of ultraviolet treatment of sap in producing a quality product.

In the afternoon Lynn Reynolds spoke on the advantages of using a separate finishing pan and the convenience, economics, and future of Reverse Osmosis. Next was Dr. Randy Heiligmann of The Ohio State University speaking on this year's hot topic, lead. Guidelines were given on how to produce pure syrup with as low a lead level as possible. Fortunately, lead has not been much of a problem in Ohio. Most producers report no public alarm on the subject. In addition, tests sponsored by the Ohio Maple Producer's



Association showed lead levels to be quite low, with most below 250 ppb. The consensus among Ohio producers is that lead is a non-issue in our state and, as Dr. Heiligmann expressed, hopefully will not even be on the agenda next year.

Once the actual season arrived, it was gone before many producers had finished tapping. Weather in the 60's and 70's starting March 11 put a quick end to the season. Those tapping in February did better than those who waited until the first of March. Generally, a half crop was reported.

The 66th Annual Geauga County Maple Festival was held the weekend after Easter in Chardon. This could well be the oldest Maple Festival in North America. It was founded by A.B. Carlson in the spring of 1926 to promote the products of local maple producers. The Festival features contests, crafts, rides, refreshments, all sorts of maple treats and of course the annual syrup and candy competition whose results are presented at Friday's Hall of Fame luncheon.

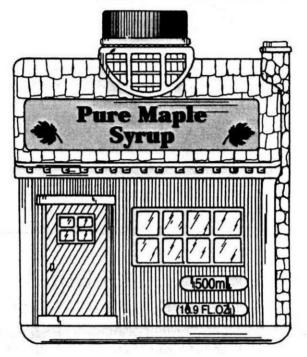
This year's inductees into the Geauga County Maple Syrup Hall of Fame are Mark Sperry and The Rhodes Sisters. Mark was born in Middlefield where he remembers farmers driving their livestock into town for sale of "dicker day". He was employed by the FBI prior to returning to Geauga County where he practiced law. With the help of Jonas and John Gingerich and their families he and his wife, Aggie, continue to produce syrup on their property. As a member of the Geauga County Park Board he encouraged the development of a sugarbush and sugarhouse at Swine Creek to showcase this important part of our heritage. He was also part of the county's first library board, served 60 years on the county bar association, historical society and the park board. (Their Sugarhouse was on the December, 1992 cover of the Maple Syrup Digest.)

The Rhodes Sisters, Marilyn Anderson and Nancy Kothera, were born into a syrup making family, in fact, their parents, Anson and Ella Rhodes were Hall of Fame inductees in 1984. When Anson retired from farming it was Nancy and Marilyn who continued the syrup making tradition and rebuilt the sugarhouse and installed new equipment. Their love of horses has always been evident. In addition to being used for gathering sap the Percherons are also shown at county fairs. Driving School Bus, serving on festival boards and Christmas Tree Grower's Association and township positions keeps the Rhodes Sisters busy. With the help of Marilyn's husband, Richard, who does the boiling, their syrup has won blue ribbons at the Geauga County Maple Festival and Geauga and Ohio State Fairs. *

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NOW THIS IS PROMOTION!

(See Cover Picture)

The Vermont Maple Promotion Board and Wildcat Refrigerated Transport of St. Albans last month unveiled the latest maple promotion idea. This 40 foot long trailer is probably the world's largest maple billboard. Sugarmaker Ron Bartemy, Jr. of Wildcat made the offer to the Promotion Board and the project was funded with help from Sugarhill Container Corporation and New England Container Corporation.

The billboard, on both sides of the

trailer, features a telephone number answered in the Vermont Department of Agriculture for information on purchasing pure Vermont maple syrup. Promotion Board Chair Jacques Couture of Westfield noted, "this trailer, traveling all across the country has great potential to spread the word about Vermont and its best known product." All three northern Vermont television stations covered the unveiling on the evening news.

The trailer made its first Vermont parade appearance at the Vermont Maple Festival in St. Albans on April 23. It will also appear in the Vermont Dairy Festival parade on June 3 in Enosburg Falls.



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THE GATHERING

By Tami Nielsen Chardon, Ohio

Shhhh. Listen. Do you hear it? The steady drops are faint at first, almost indiscernible. But as your ears become attuned to the sound, it seems to grow louder, stronger, almost deafening, and as the woods reverberate with the echoes of escaping sap, you begin to decipher a pattern. Even though each tree broadcasts a different rhythm, you foot begins to tap to a familiar song that only the buckets can sing. Their chorus sends a chill down your spine and a smile to your lips. . . .it's sugaring season once again.

To most, these words being certain images to mind: a tall stack of steaming pancakes, dripping with golden syrup, the taste of the season's first batch, or the smell of the sweet steam escaping from the boiling sap. However, for those of us involved with more than just the end result, sugaring season has a far deeper meaning. The rigors of gathering are rewarding, especially at the Geauga Park District, for they result in a deep respect for the sugarbush, a kind of partnership with the woods, and teamwork, with each other and the horses.

It's not long before the team of Belgians arrive, their clean, golden coats glistening in the morning mist. They are alert, anxious, and the spring in their step boasts an excitement that matches ours. Their ears are forever twitching back and forth in an effort to accustom themselves to the woods and the commands of their driver. The chill of the morning is divulged in their every breath which billows like smoke from their nostrils. They have brought the sap sled. Empty and light now, but

weighing close to a ton when its 160 gallon capacity is reached. It glides easily across the increasingly muddy path.

With gathering pails in hand we head into the sugarbush, having mentally chosen the first bucket-laden tree with which we will begin the long and tedious morning. The pails are brimming with sap, some are overflowing, and it only takes a short while before the sap sled is full. Now the horses head for the sugarhouse where the sled will be emptied into large holding tanks. We are left in the trees to take a much needed break. As we sit on our fathering pails we have time to notice our surroundings. It is becoming warmer and the sound of dripping sap is now accompanied by a chorus of bird songs announcing the coming arrival of spring. Large pools of water have accumulated on the trail, accentuated by the horses hooves. It is becoming a mucky mess. We also have time to regain some feeling in our numbing fingers and toes.

Soon we can hear the driver's commands in the distance. The horses are returning for another load. As the morning progresses, our actions be-



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come less arduous. Hoisting the gathering pail up to dump the sap into the sled becomes fatiguing work. Sometimes we get careless, missing the sled's opening by a few inches and giving those close-by a sticky shower of sap. Everyone is getting cold and wet. The morning has taken its toll on the horses, too. Their glossy coats shine no more, in fact, it is hard to tell just what color they are. The air is heavy with their sweaty scent and loud grunts as they surge forward through the mud, sometimes slipping to their knees, to haul the sweet water. Yet even though they have lost the bounciness of their step, their ears are still working to hear the commands and they move on through the sugarbush wanting to please.

As the final buckets come into view, we breath a sign of relief and are able to muster up enough energy to finish the job. We have emptied over 500 of them this morning and even though we are exhausted, a sense of accomplishment overcomes us. Our sugarbush has produced for us again. Our relief seems to be contagious for the horses, too, seem to know that they are through—for today. Sap sled full, they head for the sugarhouse where visitors anxiously await, tall stacks of steaming pancakes, dripping with golden syrup on their minds. •

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DEALER INQUIRIES INVITED

GRIMM MAPLE SYRUP EVAPORATOR DONATED TO MUSEUM

A Grimm Champion Evaporator — the last of its kind in the township — has been donated to the Ameliasburgh Historical Museum by resident Clint Tomlinson.

The evaporator was widely used throughout North America in the manufacturing of maple syrup. And, according to maple historian Clarence Coons, the Grimm model, available in 20 sizes, was the biggest seller.

"By 1916 there were 60,000 Grimm Champion Evaporators in use in Canada and the United States."

The Grimm evaporator was pat-

ented in Montreal and built from 1884 to 1952. A descendent, Una Grimm, who now resides in Belleville, was also on hand for the ceremony.

"My husband's father was in it to begin with," she said.

Ron Hubbs, museum volunteer and maple syrup association president, was instrumental in obtaining the evaporator from Tomlinson, who hadn't used it since 1964. The family donated the item and a plaque on the wall of the museum sap shanty dedicates the evaporator to father, Cecil Tomlinson and uncle, James Broad.

"(The museum's) a great place to educate kids," said Hubbs. "A great place to come in touch with the sugar bush."



Una Grimm, a descendent of the Grimm Manufacturing Co., and Clint Tomlinson, a former maple syrup producer, tout the business of maple syrup at the Ameliasburgh Historical Museum during a dedication ceremony of the induction of the Grimm Champion Evaporator.

MAPLE RECIPES

MAPLE WALNUT MUFFINS

Yield: 20 muffins

1 1/3 cups walnuts, chopped

3 Tbs. butter, room temp.

2 eggs

1 cup whipping cream

1 1/3 cups maple syrup

1 tsp. maple extract*

1 1/2 cups flour

1 Tbs. ground cinnamon

2 tsp. baking powder

1 tsp. baking soda

1 1/2 cups rolled oats

1 cup dates, chopped**

Preheat oven to 350 degrees. Line muffin pan with paper cup molds or grease pans.

Combine nuts and butter. Place on cookie sheet and toast 8-10 minutes in oven; stir occasionally. Set aside.

Combine eggs, cream, 1 cup maple syrup and maple extract. In separate bowl, sift flour, cinnamon, baking soda and baking powder. Add oats. Add wet ingredients, dates and 1 cup nuts. Combine until just incorporated.

Fill paper liners 2/3 full of batter, sprinkle tops with remaining nuts and maple syrup. Bake 20 minutes, until golden, moist. Pierce muffin with toothpick — if it comes out clean, muffins are done.

*Extract not necessary — if unavailable, use vanilla instead.

**If dates not available, raisins can be substituted.

MAPLE CHEESECAKE

Yield: 1 10-inch cheesecake

CAKE:

3 1/2 cups soft cream cheese

3/4 cup sugar

4 eggs

1/4 cup heavy cream

1 cup maple syrup

2/3 cup sour cream

CRUST:

1 cup graham cracker crumbs 1/4 cup melted butter

For crust: Combine graham cracker crumbs and butter and press into a cheesecake mold.

For cheesecake: Place soft cream cheese in mixer and beat until smooth. Add sugar and beat until incorporated. Lower bowl and scrape bottom to insure all cream cheese is properly mixed. Add cream and incorporate. Scrape bottom of bowl again. Add eggs to the mixture slowly and beat until smooth. Scrape bottom and mix in remaining ingredients. After mixture is smooth and creamy, it is ready to be put into mold.

Bake at 325 degrees in a still oven with the cheesecake mold in a shallow water bath. Bake until cheesecake is

set and not wobbly.

DEADLINE FOR NEXT ISSUE IS

SEPTEMBER 1ST

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, 1995 for consideration in 1995. Proposals received after that date will be considered in 1996.
- (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. *

1995 NEW YORK STATE MAPLE TOUR TO VISIT TIOGA COUNTY

The Annual New York State Maple Tour, July 24 and 25, will be visiting Tioga County in the Southern Tier of New York this year. The host for this years tour will be the Tioga County Maple Producers Association. The maple producers in Tioga County are already busy, when the sap isn't flowing, planning the tour. Some of the stops which will be part of this years tour include a sugar house with a 'mini' museum for school tours, buried mainline, tree tapping and tree felling demonstrations and a visit to Cornell University's Arnot Forest. The tour will be based at the Owego Treadway Inn situated on the bank of the Susquehanna River. Tioga County is centrally located on NYS Route 17 and just west of Binghamton, NY and east of Elmira, NY. So mark your calendar and plan on spending July 24 and 25 in Tioga County, NY with maple producers from far and wide. For more information on registration for the tour, equipment exhibitions, or advertising in the tour program contact Tom Wall, Cornell Cooperative Extension, 56 Main Owego, St., NY 13827, 607-687-4020.

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FUNGI, PEAR THRIPS AND ANTS

By Michael Brownbridge, Jim Boone, Margaret Skinner & Bruce L. Parker Entomology Research Lab University of Vermont

While pear thrips populations and subsequent levels of maple damage have fluctuated since the major outbreak of 1988, it has become very clear that pear thrips is not a temporary pest that will simply disappear, but poses a real threat to the long-term health of sugar maple forests throughout the Northeast. Management of this pest is complicated by its cryptic habits and its biology, and conventional chemical controls are not a viable, or desirable, option. Use of biological controls offer great potential for management of pear thrips, and studies at the University of Vermont, Entomology Research Lab. have focused on the development of native species of insectkilling fungi for use in a thrips suppression program. These commonly occurring insect diseases are capable of killing a variety of pest species, and already contribute to the natural regulation of this tiny insect. The control strategies we envision would, in a sense, help alter the balance of nature in our favor by augmenting populations of these beneficial microbes in maple forest soil.

Two types of fungi are being used in our on-going trials, Verticillium lecanii and Beauveria bassiana, both originally isolated form infected insects collected in a Vermont maple stand. We chose to apply fungi to the forest floor, targeting thrips entering the soil to pupate and overwinter. The trials were conducted to address two basic issues: 1.

how effective are the fungi against pear thrips under field conditions; and 2. can we enhance soil populations of these fungi and for how long. Data obtained from these field tests will indicate the feasibility of using the fungi in a control program, and whether we can establish higher levels of fungi in the soil to potentially provide a longterm source of infection for pear thrips.

Results of trials done in 1994 show that, for both fungi, the number of infected larvae recovered from samples taken in treated plots was significantly greater than the number recovered from control plot samples. In addition, we were able to detect enhanced levels of inoculum in the soil for over 3 mo. In soil samples collected from plots seeded with Beauveria in 1993, we found that pathogen levels were still greater than 40 times higher than the controls more than a year after the treatment was applied. Thus, on the basis of the results obtained, we appear to be able to obtain reasonable control of thrips with the selected fungi, and to positively influence the level of inoculum in forest soil. In trials scheduled for this year, we aim to modify our treatment regime to attain even better levels of control.

The fungi show great promise for pear thrips management, but what of the broader host spectrum of these agents? If the fungi are to be used in a sugarbush, it is essential that their impact on key non-target beneficial organisms is understood. Therefore, we have been conducting a series of tests on the ant species Camponotus pennsylvanicus. This insect is commonly found in maple forests where it is an important general predator, feeding on a variety of defoliating insects, and

plays a major role in the decomposition cycle. Through its foraging activity it would possibly be exposed to fungi applied to the forest floor for thrips control.

In lab trails, ants were first directly treated with formulated and non-formulated fungi, and then held under conditions to promote infection. Sure enough, under these conditions, the fungal isolates tested were very pathogenic. For both Beauveria treatments. close to 100% of the test insects were killed within 14 d. compared with only 17% mortality in the controls.

To more closely simulate natural conditions, the pathogenicity of formulated B. bassiana to ants was tested in soil. First, sterile maple soil was used to eliminate potential fungal competitors and antagonists. Subsequent trials were done with non-sterile soil. In the sterile soil, 25% of the ants died after 7 d, rising to 85% by day 14, compared with less than 5% mortality in the controls at both time intervals. In nonsterile soil, however, no ants had died by day 7, and around 40% of the exposed population died after 14 d, significantly lower than the mortality levels obtained on the sterile soil. This year, we will evaluate effects under true field conditions, caging ants in plots treated with fungi to control pear thrips. While lab results suggest that the ants are susceptible to the fungi being used in our trials, these tests were conducted under conditions heavily biased to enhance development of a fungal infection. The dose levels used were purposely, but unnaturally, high, and the ants were a 'captive' audience within the treatment arena. Holding the insects under artificial conditions also provides an additional source of stress that would predispose the ants to infection. In a forest, this would not be the case, and a variety of other factors would influence the activity of the pathogens. As such, effects seen in the lab are unlikely to be repeated in the field. The potential impact of these microbes on the environment and other non-target beneficials will unquestionably be minimal, particularly when compared with any of the conventional chemical insecticides contemplated for pear thrips management. We must remember, these fungi are already working in maple forests, we are simply trying to make them work better to provide an ecologically safe solution to a perennial pest problem. *

DEADLINE FOR NEXT ISSUE IS

SEPTEMBER 1ST



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COMING EVENTS

NEW YORK STATE MAPLE TOUR

July 24-25, 1995 Owego Treadway Inn

Contact: Tom Wall, Cornell Cooperative Ext., 56 Main St., Owego, NY 13827 or call 607-687-4020.

VERMONT MAPLERAMA

August 10, 11 & 12, 1995

St. Michael's College, Colchester, VT

Contact: UVM EXT, P.O. Box 53010, Burlington, VT 05405-3010

NEW YORK STATE FAIR

August 24 — September 4, 1995

PENNSYLVANIA MAPLE TOUR

September 29 & 30, 1995

Presbyterian Church in Wysox, PA

Contact: Bradford Co. Extension Service, PO Box 69, Towanda, PA 18848 or call 717-265-2896

36th ANNUAL MEETING OF THE NORTH AMERICAN MAPLE SYRUP COUNCIL

October 21-25, 1995

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NEW YORK NEWS

By Marion Wells

The winter of 1994-95 was supposed to have been an "old fashioned" winter, according to the sales of snow blowers in the fall - however, it didn't turn out to be much of a winter after all - and thats just about how the sappin' season turned out to be also, for most of the state. Early March proved to be too warm for too long and thus went the season! By the time some cold nights and warm days type of weather arrived, the damage was done, tapholes dried up early, bacteria counts were high and dark syrup was the rule. To be sure some areas of the state had a more normal season — the North Country and higher elevations didn't get all that warm.

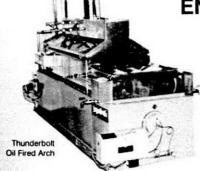
Spring is the time for Maple Festivals throughout the state. Successful events were held at Medusa, Cobleskill, Marathon, Franklinville and Andover. The American Maple Museum at Croghan opened its 1995 season on May 13th. Plan to visit the Museum this summer!

Is your county or state association having problems getting dues paid on time? One county here has tried something new that seems to work. Perhaps others might like to try. They solicited small gift certificates from maple equipment manufacturers, then had random drawings from names that had renewed by certain dates. They found this to work very well and by February the renewals were over twice what they had been previously. Try it, it could help your association get dues paid earlier, too!



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