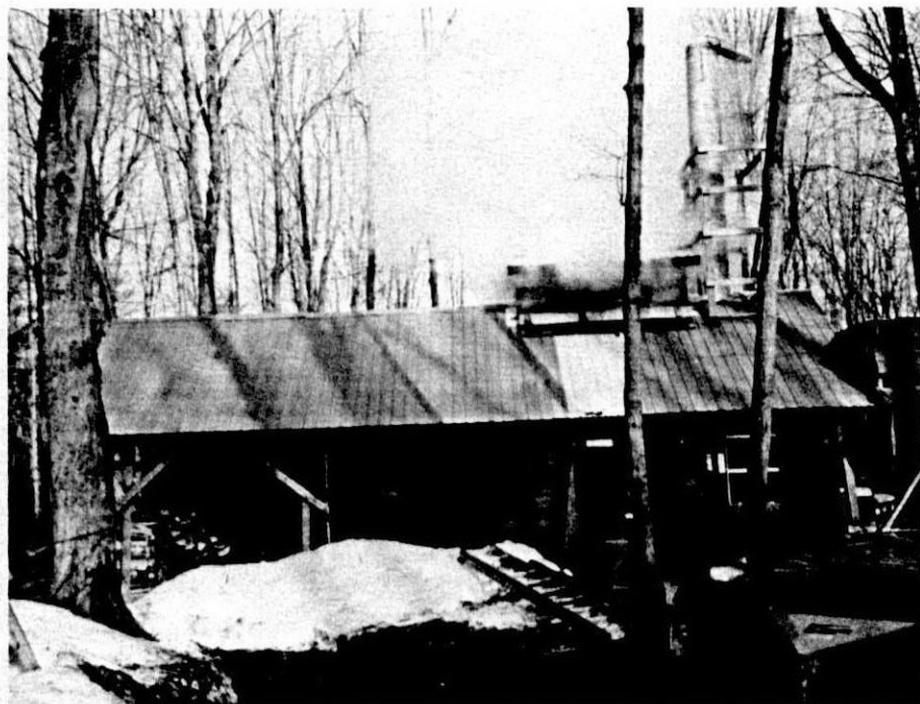




# MAPLE SYRUP

# DIGEST



**VOL. 5A, NO. 2**

**MAILED BY 6-1-93**

**JUNE, 1993**

Address Correction  
Requested to:  
Canterbury, NH 03224

BULK RATE  
U.S. POSTAGE PAID  
CANTERBURY, NH  
PERMIT NO. 14

# For a Limited Time Only 1993 Manufactured Items at 1991 Prices

Where others have raised prices to allow for cash discounts,  
Leader will be selling 1993 manufactured items at 1991 prices!!!  
Contact Your Local Dealer For Details

COMPARE  
U.S. MADE QUALITY  
BEFORE YOU BUY



**STEAM-AWAY™**

\*Patent Pending\*

Our Steam-Away utilizes steam from the evaporator flue pan to increase evaporation. Test results show increased evaporation as high as 75%.

— SPRINGTECH R/O —

The only R/O manufactured in the U.S. strictly for the Maple Industry.

*DROP FLUE EVAPORATORS — HEATING SURFACE WHERE IT COUNTS*  
**THE LEADER, KING, AND VERMONT**

We have added several pages of **NEW ITEMS** to our **1993 CATALOG** for your sugaring needs. Please call or write for your copy.



*Leader*

**EVAPORATOR CO., INC.**  
25 STOWELL ST., ST. ALBANS, VT 05478  
802/524-4966 or 524-3931

---

# THE BACON™ JUG FLAVOR PROTECTION



The flavor of your pure maple syrup keeps your customers coming back. **FLAVOR SELLS SYRUP.**

A recent update from the Container Study by the Proctor Maple Research Center found, after one year of testing, that plastic containers hold the flavor of maple syrup about twice as well as metal containers. The Bacon Jug had shown the best results to date, with no off flavors.

Protect the flavor of your pure maple syrup. Ask for the jug made from high grade dairy resin — **THE BACON JUG.**



For more information, and the name of the Bacon Jug Dealer nearest you, call or write to:

THE BACON JUG COMPANY, INC.  
RD # 2, BOX 580  
LITTLETON, NH 03561  
603-444-1050

---

# MAPLE SYRUP DIGEST

Official publication of the  
NORTH AMERICAN  
MAPLE SYRUP COUNCIL

## NORTH AMERICAN MAPLE COUNCIL DIRECTORY OF OFFICERS

Lynn Reynolds . . . . . President  
Hortonville, WI 54944 414-779-6672  
Richard Norman . . . . . Vice-President  
Woodstock, CT 06281 203-974-1235  
Carl Vogt . . . . . Secretary/Treasurer  
Osseo, MN 55369 612-425-3742

# DIRECTORY

Published and Edited by:

ROY S. HUTCHINSON  
P.O. BOX 240  
CANTERBURY, NH 03224  
Phone: 603-783-4468

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

Postage paid at:  
Canterbury, NH 03224

### FIELD EDITORS

Conn. . . . . Jerry Milne . . . . . 203-283-9851  
South St. Ext., Plymouth, CT 06782  
Indiana . . . . Dan Garner . . . . . 812-824-4406  
6776 W. Rockeast Rd., Bloomington, IN  
47403  
Maine . . . . . Vicki Schmidt . . . . . 207-377-6275  
PO Box 282, Kents Hill, ME 04349  
Mass. . . . . James Graves . . . . . 413-625-9066  
R.D. 1, Shelburne Fall, MA 01370  
Mich. . . . . Frank Majszak . . . . . 616-228-5835  
R.D. 1, Baatz Road, Maple City, MI 49664  
Minn. . . . . Wanda Patzoldt . . . . . 218-326-5769  
3001 Horseshoe Lake Rd., Grand Rapids,  
MN 55744  
N.H. . . . . Frank H. Owen . . . . . 603-237-4432  
35 Bridge St., Colebrook, NH 03576  
N.S. . . . . Maxwell Spicer . . . . . 902-392-2823  
Spencers Island, NS, Canada BOM 1S0  
N.Y. . . . . Lloyd Sipple . . . . . 607-967-7208  
RD 2, Box 126, Bainbridge, NY 13733  
Ohio . . . . . Tom Hoffman . . . . . 216-659-3061  
P.O. Box 326, Bath, OH 44210  
Ont. . . . . Bill Robinson . . . . . 519-529-7857  
RR 2, Auburn, Ont., Canada  
Penn. . . . . Jim Tice . . . . . 717-549-5257  
R.D. 1, Box 29, Mainesburg, PA 16932  
Vt. . . . . Ray Foulds . . . . . 802-864-6305  
5 Clover St., So. Burlington, VT 05403  
Wisc. . . . . Roland Jorns . . . . . 414-868-3161  
4518 Highway T, Egg Harbor, WI 54209  
N. Eng. . . . . Sherb Doubleday . . . . . 802-334-2793  
Newport, VT 05855

### DIRECTORS

Kenneth Shipley . . . . . 317-358-3030  
Gaston, IN 47342  
Robert S. Smith . . . . . 207-474-3380  
Skowhegan, ME 04975  
Tom McCrumm . . . . . 413-628-3268  
Ashfield, MA 01330  
Larry Gearhart . . . . . 616-749-9348  
Clivet, MI 49076  
Elizabeth Collins . . . . . 612-649-5154  
969 Manvel St., St. Paul, MN 55114  
Roland Mallais . . . . . 506-358-2906  
New Brunswick  
Hank Peterson . . . . . 603-432-8427  
Londonderry, NH 03053  
Avard Bentley . . . . . 902-548-2973  
West Chester St., NS BOM 2A0  
Roger Sage . . . . . 716-786-5684  
Warsaw, NY 14569  
Ture Johnson . . . . . 216-834-4206  
Burton, OH 44021  
Bill Robinson . . . . . 519-529-7857  
RR2, Auburn, Ont. NOM 1E0  
Dale Jeffrey . . . . . 814-662-2904  
West Salisbury, PA 15565  
Leopold Lafond . . . . . 514-842-9471  
1420 Sherbrooke West, Montreal,  
Canada H3G 1K5  
Wilson "Bill" Clark . . . . . 802-325-3203  
Wells, VT 05774  
Roland Jorns . . . . . 414-868-3161  
4518 Hwy. T, Egg Harbor, WI 54209

### DIGEST ADVERTISING RATES

2 Page Spread . . . . . \$450.00  
Full Page . . . . . 240.00  
1/2 Page Vert. or Horz. . . . . 135.00  
Column Inch . . . . . 19.00  
Classified . . . . . 70c per word

**DEADLINE FOR COPY: First of the month preceding date of issue.**

### SUBSCRIPTION RATES:

United States: 1 year — \$5.00  
Canada, US funds: 1 year — \$7.00

### COVER PICTURE:

Sugarhouse owned by Ralph Shaw and son Allan in Croghan, NY.

## GREETINGS FROM YOUR PRESIDENT



Walking home from the sugar house after a long day of gathering and boiling is like a breath of fresh air. The evening is cool and crystal clear tonight. Even though darkness is all around, the moon makes the woods bright and friendly. The frogs are singing loud enough to sound like a full orchestrated concert. Little nocturnal creatures scurrying around make sure we are never all alone. Syrup season is about over. The mud is almost dried up. Much easier walking than it was a month ago. A million stars are sparkling above like diamonds shimmering on the collar of a black velvet dress. Yes, the seasons are changing. Spring is fading, summer is creeping in. Rains will soon make the forest floor bright with wild flowers. Grass and leaves will green everything. Life will burst forth with a flourish of new miracles. But for tonight, let us just simply enjoy the solitude. The night will pass oh, so quickly. The daylight will come so soon. The seasons will change. Challenges will come and go. We will toil and be fulfilled. Our rewards are all around us. So breath deeply. Inhale all that surrounds us. We maple people are so fortunate to have this forest of serenity. Enjoy it to its fullest. And life goes on.

Exciting things are happening in our industry. Formation of the North American Maple Syrup Pro-

motion board is proceeding under the capable direction of the IMSI. The response by Provincial and State Maple Associations to cooperate and participate in this promotional effort is encouraging. In the final analysis, it will be up to us to support promotional programs with contributions. We are the ones that will make this idea succeed. But I feel it is much better for us to create and operate our own promotion board than it is for a government agency to direct our industry's promotion board. So I urge all of you to become involved in your own Provincial or State Promotion Boards which will then be in a position to contribute to the IMSI's efforts for an overall generic promotional effort. In my opinion, we never want to be as unprepared for a series of large crops and the resulting surpluses created as we have been these past few years. We must promote, continue to promote, and be prepared to promote in times of larger supplies.

Agriculture Canada has awarded the IMSI a \$64,000.00 grant for promotion and public relations. We thank the Canadian Government for their help. This is a very positive step towards initiating the promotional programs that the IMSI is anticipating through the North American Maple Syrup Promotion Board.

I am pleased to tell you that Quebec has recently formed a non-profit corporation which shall function in a capacity to handle the surplus situation. But more importantly, this organization shall be able to provide representation and cooperation with the Council and



the IMSI. This organization shall represent all Quebec maple producers and marketing of maple products. We welcome this positive step.

The extension persons from all the maple producing Provinces and States are assuming the responsibility for providing assurance of purity for samples provided to Dr. Low in his research for a test to detect adulteration. This is a very positive step since this should place sample methodology above reproach. The importance of this will be evident in the future when prosecution of cases involving maple adulteration become strictly enforced. We must clean up our industry's image by getting the junk off the market. And, we must punish those that at present feel they can violate without danger of prosecution. So, I ask you please, make sure your samples provided to Dr. Low are in fact, pure. And, please cooperate with your extension personnel in documenting this guarantee of purity. This is probably the most critical problem our industry faces today.

Early reports indicate that many areas of the maple production are not having a very good crop. It certainly is not my intent to show joy over poor production. However, I look at it as a control that Mother Nature exercises over all crops, especially maple. This may provide us the opportunity to resolve our surplus problems. It may provide us with better prices for our efforts. It may allow us to recover from our over production of the past few years. But, let us use good judgement this time. Let us not get too

greedy. We should produce with market in mind. We must sell what we produce. So this time, we need to be smarter. First, produce with common sense. Second, sell what we produce. Third, don't price ourselves out of the market. And fourth, develop a method of promotion now so that we are geared up for larger crops that occur in the future. I believe if we exercise these four steps; and, proceed with our programs of research, participate in our maple associations, and support the Council and IMSI, our maple industry has a very secure future.

I know this will be the greatest summer you have ever had. Sell lots of syrup. Enjoy the sun. Take time to smell the roses along the way. May your path be smoothest ever. We will visit again in October. Au revoir, tout le monde! A bein-tot!

Lynn Reynolds  
Your President

---

## MASSACHUSETTS SUMMER MEETING

The Massachusetts Maple Association Summer Meeting and Picnic will be held Sunday, July 25 at the Davenport Maple Farm in Shelburne, Massachusetts.

There will be workshops on: Specialty Marketing, How to Get into the Mail Order Business and How to Get More \$ for Your Product.

For more information contact Tom McCrumm, Mass. Maple Producers Association, Ashfield, MA 01330 or call 413-628-3268, 413-628-3912.

## FROM THE EDITOR

It is with sadness that I learned of Lloyd's passing. It was a shock for us all.

For those of you who thought I should have put more in the Digest about Lloyd, I had to stop the presses to do the brief announcement. I apologize to Lynn for deleting part of his President's Message, but on short notice it was the only place I could put it. This issue contains a more complete obituary.

The raising of dues January 1st seems to have caused some confusion. If you are subscribing for

yourself the cost is \$5.00 per year U.S. and \$7.00 Canadian. If your Association buys the Digest as part of their dues structure then the cost to the Associations is \$3.00 per year U.S. and \$5.00 Canadian. The reason for this is to encourage people to join their state associations.

After a long hard spring, I hope the summer will be better. Short supplies and rising bulk prices should get some syrup back to near normal pricing.

Have a good summer.

Editor

## NEWSLETTERS WANTED!

The Massachusetts Maple Producers Association is interested in starting a newsletter exchange. The idea is to "swap newsletters" from other maple associations. They will send for free, copies of their newsletter to any association who does the same. Please send to Tom McCrumm, Massachusetts Maple Producers Association, Ashfield, MA 01330.

# HANSMANN'S

*Hansmann's Mills manufactures six varieties of Pancake Mixes which are wholesome and delicious. We use only the finest ingredients. No additives, no preservatives.*

*These Pancake Mixes are packed in attractive bags in one pound and two pound sizes.*

*Perfect to supplement your Maple Syrup Sales or include in your gift packages. Custom mixes and private labeling.*

*Hansmann's Old Fashioned Pancake Mix, Buttermilk Pancake Mix, Buckwheat Pancake Mix, Whole Wheat Pancake Mix, Oat Bran/Oatmeal Pancake Mix and other specialty mixes are available in 1 pound and 2 pound size bags.*

*Hansmann's Corn Pancake Mix is available in 1 pound size only.*

**HANSMANN'S MILLS, INC.**

**P.O. Box 280**

**Bainbridge, N.Y. 13733**

**Phone 607-967-5080**

## LETTERS TO THE EDITOR

Dear Editor:

I just finished reading the article on Maple Syrup Containers.

It seems to me, that this Study is flawed in that it doesn't address the wide range of conditions that Pure Maple Syrup is stored under.

My belief is that very little syrup is stored in such ideal conditions. The syrup I sell to various outlets, is stored under very different conditions — from very cold to hot; complete darkness to direct sunlight; high humidity to low.

To better enable us to pick the very best container for our truly gourmet product, I would like to see a much broader test.

B.J. Kimball  
Wattsburg, PA

---

Dear Editor:

In May of 1992 at the induction ceremony for new members of the Hall of Fame, I had the honor of being introduced by Lloyd Sipple, a long-time associate in the maple syrup industry who contributed more than any man I know to the practical application of the production of quality maple syrup based on the research of scientists in our industry. Much of the material in U.S. Agriculture Handbook No. 134, The Maple Sirup Producers Manual by C.O. Willits and Claude H. Hills first published in 1963, was based on Lloyd's practical applications in the processing of maple sap into maple syrup. He helped write the book.

Lloyd Sipple was a highly intel-

ligent, inquisitive, imaginative, industrious, inventive, ingenious, honest, sincere, persistent and modest individual.

I was fortunate to know him and to have had the honor of being presented by him as a 1992 member of the Hall of Fame.

I was shocked to learn of his passing. His family, all the people inside and outside of our industry, and I will sorely miss him.

Edward S. Doubleday  
Newport, VT

---

Dear Editor:

The seasons come and go and there seems to be little change from year to year. But when we look back from some distance there are some very significant things that have happened. For the older people among our industry the changes are tremendous. The change from horses and buckets and open pan evaporators to tubing, vacuum and shiny stainless steel high-tech boiling systems were beyond our comprehension.

This modernization is due to people of vision and the persistence to bring about the new technology of recent years.

Our industry has been endowed with men of vision. We have just lost two giants who have made a tremendous impact on the maple industry.

Lloyd Sipple of Bainbridge, NY was tireless in the art of improving sap gathering systems, production,



# 1993 VERMONT MAPLERAMA

sugar house design, marketing and most of all sharing his thoughts with the whole industry. He will also be remembered as the original and long time editor of the "Maple Syrup Digest" and served on the first board of directors of the North American Maple Syrup Council. A member of the American Maple Hall of Fame, Lloyd Sipple will be remembered as a friend of maple.

Robert "Bob" Moore of the G.H. Grimm Company passed away shortly after Lloyd. An innovator of maple equipment, Bob was always ready to talk "maple" with anyone. He would attend maple meetings anywhere and usually had a few stories to tell besides the serious work of selling maple equipment.

A long season has just closed on these two men admired in the maple syrup industry. My best regards to the families of these two good men. Their endeavors will live forever.

Russ Davenport  
Shelburne Falls, MA



**Buyers of All Grades  
of Bulk Pure Maple Syrup  
and Pure Honey in Drums**

**PAY CASH ON RECEIPT**

**Telephone: 603-444-6246**

The 1993 Vermont Maplerama will be hosted at Johnson State College on July 29-31 by the Lamoille County Maple Sugarmakers. Registration materials will be mailed by early June with deadline for return by mid-July. Costs will be held close to last year's.

Program highlights will include a Friday tour of the UVM Proctor Maple Research Center to view the new sugarhouse and laboratory and to learn about research on acid rain and fertilization, along with workshops/speakers at the college. Topics at the college will cover candy making, marketing and promotion, animal damage control, and tree health to name a few. Saturday will provide a full day on-the-road visiting sugarhouses, a syrup/honey packing plant, and the Johnson Woolen Mills.

After dinner entertainment will be provided by George Woodard, well known for his down-home comedy, skits and music. Of special interest may be the SHAPE facility on campus, on which all exhibits, registration and relaxation opportunities will be held. The pool, racquetball courts and other exercise areas will be available.

For registration, contact either George Cook, UVM Extension Regional Maple Specialist, RR 1, Box 2280, Morrisville, VT 05661, 802-888-4972; or Paul Frederick, County Forester, RR 1, Box 2300, Morrisville, VT 05661, 802-888-5733.

---

## IN MEMORIAM

### LLOYD SIPPLE 1922-1993

Lloyd Sipple, Mr. Maple to a great many people passed away January 16, 1993. A lifelong resident of Bainbridge, NY, he is survived by his wife Mary Lou, one son John, two daughters Ellen and Barbara, seven grandchildren, and one great grandchild.

Lloyd spent his entire life involved in maple, at one time being the largest producer in New York State. He was an innovator in the maple industry, trying and testing many new ideas in conjunction with the Philadelphia Lab, Cornell, Bob Lamb and others. Being one of the first in the industry to use tubing, he helped make it a viable alternative to buckets. Lloyd was also one of the pioneers in using oil for heat and invented the Sipple Sugar Machine which revolutionized sugar making.

Always active in The New York State Maple Producers Association, when the directors decided they should have a sales booth at the New York State Fair Lloyd volunteered to design a booth and manage it. For 30 plus years Lloyd managed the Fair booth implementing new ideas and increasing sales. He decided to make sugar in the booth to show fairgoers how sugar was made. The sugar was sold to help pay expenses and is still being done.

When the North American Maple Syrup Council was started in 1960, Lloyd was again there being the first delegate from New York and the second president of the Council. At the first meeting the delegates decided they should have a newsletter to the producers. Lloyd agreed to try this and the Maple Syrup Digest was born. In the next 28 years Lloyd with Mary Lou's help published, edited, sold advertising, collected stories, and mailed four copies a year of the Maple Syrup Digest to the maple producers of the world.

Lloyd was also active in community and church affairs. If the church needed a new roof, Lloyd was the first one to volunteer. He also played in and directed the Bainbridge Town Band for many years. The maintenance of the Bainbridge Town Park also fell on Lloyd's shoulders.

Lloyd was inducted into the Maple Hall of Fame at the Maple Museum in Croghan, NY in 1981.

Being a perfectionist in everything he did shows up in his Christmas tree plantation. Each tree is perfectly shaped and the plantation is meticulously mowed and maintained. The family is keeping this tradition going by planting 2000 trees this spring.

Lloyd will be missed by everyone in the maple industry and we appreciate all that Lloyd did to make the world a better place to live.

---

## IN MEMORIAM

ROBERT F. MOORE

Vermont maple legend Robert F. Moore died on January 28 at Rutland, Vermont. Moore was a long time owner of the G.H. Grimm Co. of Rutland. He bought the firm in 1951 when there was only one employee.

His faith in the maple business was never shaken, but he did diversify by developing four different hay tedders and obtaining patents on two of them. Those hay tedders are nearly the same today. Moore was able to purchase the Lighting Evaporator Co. with its raised flue technology, and that put the G.H. Grimm Co. back on the map in the maple equipment business. He cooperated with Lloyd Sipple in the development of the cream machine.

A fourth generation sugarmaker, Bob Moore retired from the company in 1984. He stayed active in the maple industry and continued his involvement through the Vermont Maple Industry Council.

Moore was born in Peacham, Vermont in 1906, graduated from Peacham Academy in 1923, and the University of Vermont in 1927. His degree from UVM was in Mechanical Engineering.

He leaves his wife of Rutland and sons Philip of Mendon, Robert L. of Rutland, and a brother John of Arlington. He was very proud of his seven grand children.

Robert Moore is quoted as saying, "I don't mind dying, but I hate to miss sugaring'."

---

# Maple Grove Farms of Vermont inc.

We Buy Bulk Maple Syrup in All Grades from All Producers  
Drums Are Available • Call Bill Callahan

*The Maple Center of the World*

167 Portland St., St. Johnsbury, Vermont 05819

802-748-5141

800-525-2540



## ONTARIO NEWS

The 1993 Summer Tour and Annual Meeting of the Ontario Maple Syrup Producers' Association will be held on July 15, 16, and 17 at Ridgetown Agricultural College of Technology, Ridgetown, Ontario, Canada. NOP 2CO.

For more information please contact Mr. Ken McGregor, R.R. 6, Strathroy, Ontario, N7G 3H7 or call 519-232-4596.



*Maple  
Products  
Maple  
Supplies*

- ★ **NEW Store**
- ★ **NEW Location**
- ★ **NEW Items**
- ★ **GRAND OPENING  
JULY 17, 1993**

- ★ **Small Brothers  
Evaporators**
- ★ **Bacon Jugs & Shipping  
Containers**
- ★ **Tanaka Tappers & Pumps**
- ★ **Maple Expert Tubing**
- ★ **Blue Seal Feeds**
- ★ **Other Cottage Industries**
- ★ **Discounts On Many Items**
- ★ **Refreshments All Day**

### **DAVENPORTS**

Townline Rd., Spencer, NY 14883

Off Route 34

Between Spencer and Van Etten

**(607) 589-6626**

## PENNSYLVANIA MAPLE TOUR

The 1993 Pennsylvania Maple Tour will be hosted by the Potter Tioga Maple Producers Association. The dates for the tour are September 24 and 25. The headquarters for the tour is going to be at the Potato City Inn near Coudersport. We will be touring western Tioga County and Potter County.

The evening of the 24th we will be crowning a new Pennsylvania Maple Sweetheart to replace the present Pa. Maple Sweetheart, Dundee Rees of nearby Austin. Our thanks to Dundee for a job well done.

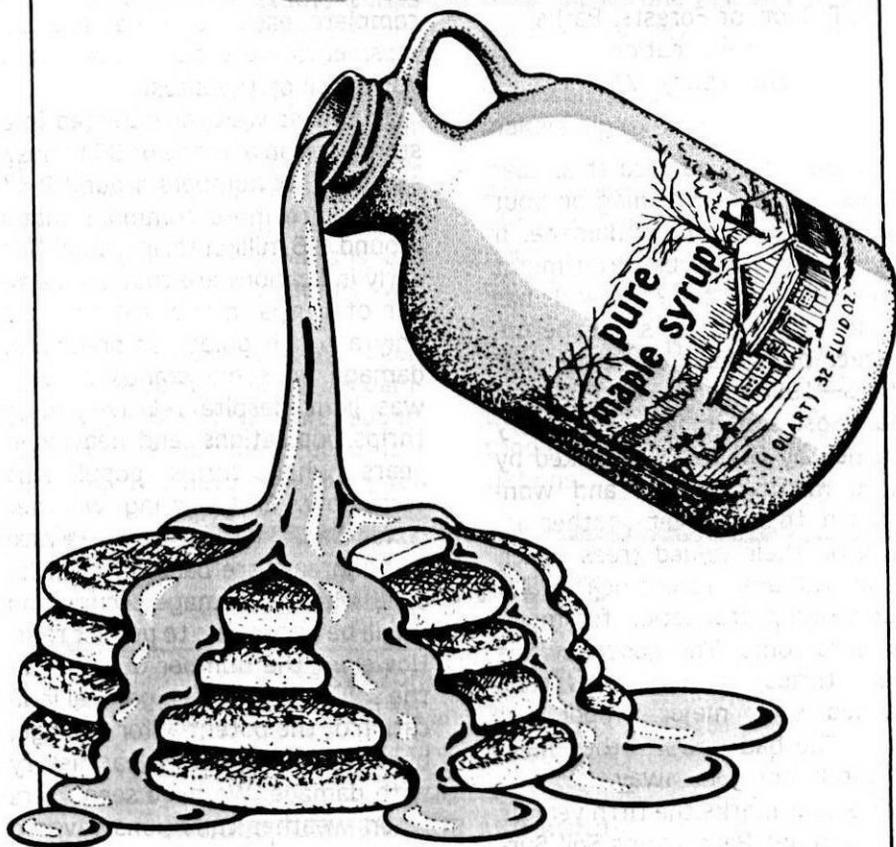
For information on the tour please contact Jim Tice, RD1, Box 29, Mainesburg, Pa 16932 or call 717-549-5257 in the evening.

## **SUMMER PICNIC AND WORKSHOP**

The Mass. Maple summer picnic and workshop will be held at Davenport's Maple Farm in Shelburne on Sunday July 25th. As a followup to last summer's successful gift box marketing workshop, this summer we will feature a guest speaker from the Ohio State University Extension Service who will educate us about innovative syrup marketing techniques. The primary focus of this workshop will be the mail order business—how to get started, how to be profitable. Over 100 samples of maple mail order brochures will be available to examine. Be sure to attend.

# sugarhill

MAPLE CONTAINERS



Our Distinctive Shape  
in Bennington Gray and Almond...

Now in 6 Sizes

Call

KATE (413) 665-8102

RUSS (413) 625-2866

**"The Plastic Bottle People"**

# A PAUSE FOR THOUGHT ABOUT PEAR THRIPS

By Margaret Skinner,  
Bruce L. Parker,

Michael Brownbridge  
Entomology Research Laboratory  
University of Vermont

H. Brenton Teillon  
VT Dept. of Forests, Parks  
and Recreation  
Waterbury, VT

By the time you read this, pear thrips will be out feeding on your maple trees and their damage, if any, should be visible. You might just want to go take a look. It has been five years now since the unforgettable year of the pear thrips—1988. At this time in that year most sugarmakers were very alarmed by the havoc wreaked by these minute insects, and wondered if this was yet another assault on their valued trees which would threaten forest health and maple syrup production for many years to come. The good news is pear thrips damage has not reached such major proportions since. The bad news is they have definitely not gone away.

This year marks the fifth year of the Vermont Pear Thrips Soil Survey. The goal of this cooperative project between the VT Dept. of Forests, Parks & Recreation and the UVM Entomology Research Laboratory was to follow pear thrips populations statewide. In addition we evaluated the relationship between the number of thrips in the soil and the amount of tree damage that occurred, with the

hope of predicting damage before thrips emerged in spring.

Soil samples, ten per site, have been taken in the fall with a bulb planter in the same 103 sugar-bushes throughout the state each year and processed to extract the thrips. At almost an hour per sample, the task was extremely labor intensive, taking over 3 months to complete each year! Damage assessments were also made every July in all of the sites.

The most we ever detected in a stand was an average of 36 thrips/sample. But numbers around 2-4/sample are more common; that's around 3-6 million thrips/acre! Our early indications are that the number of thrips in the soil provides only a rough guide for predicting damage. In some stands damage was light despite relatively high thrips populations, and heavier in years when thrips populations were low. Early spring weather conditions, which govern the rate of budbreak, are believed to influence whether damage occurs, and it will be impossible to predict that. However, the number of thrips in the soil does provide a general indication of the potential for damage, based on our limited 5-year history with damage. We have seen years when weather conditions favored damage, but there just were too few thrips for it to occur.

After a steady decline from 1988-1991, populations are again on the rise. In some areas in northern and central Vermont, populations are as high this spring as they were in 1990, when patches of severe damage were observed. Vermont sugarmakers were alerted to



the possibilities of damage in these areas, and are encouraged to keep an eye on their stands. If damage is severe this year, reducing the number of taps next year is recommended.

One thing is certain, pear thrips are one of the most commonly occurring forest pests in Vermont. In every year of this study, thrips were detected in over 90 percent of the sites, though sometimes in very low numbers. Except for mosquitoes and blackflies, few forest insects can boast such widespread distribution year after year. Even the gypsy moth that recurs like clockwork every 8-10 years is less common when populations are low.

So just because we have been spared the ravages of thrips damage for the past few years, sugar-makers have not been lulled into believing they have gone away for

good. Thanks to information from the soil survey, we know that they are still very much with us—everywhere. That is why a biological control method that persists over several years would be ideal. This year will be the first year of the pilot study to test native fungi against pear thrips. Our hope is that the fungi applied one year would reproduce and survive the winter to combat the thrips for several years afterwards. We will keep sugar-makers up-to-date on our results.

**Acknowledgments:** Development of the soil extraction method used for the soil survey was funded in part by the *North American Maple Syrup Council* and the American Farm Bureau. The soil survey was supported by generous contributions from the Vermont and Chittenden County Sugar Makers Associations.

---

## COMING EVENTS

---

### NEW YORK MAPLE TOUR

July 19 and 20, 1993

Clarkson University, Potsdam, New York

---

### ONTARIO SUMMER TOUR AND ANNUAL MEETING

July 15, 16, 17, 1993

Ridgetown Agricultural College of Technology  
Ridgetown, Ontario Canada

---

### MASSACHUSETTS SUMMER MEETING AND PICNIC

July 25, 1993

Davenport Maple Farm, Shelburne

---

# MAINE NEWS

By Vicki Schmidt

As in past years, the Annual Meeting of the Maine Maple Producers Association was held in January in conjunction with the Maine Agricultural Trades Show. The annual snowstorm that blows in on the day of our meeting also arrived as scheduled! In spite of the inclement weather the meeting room was full for both the business meeting and the technical presentations. Our booth for the three day Trade Show, designed by Vicki Schmidt, Elaine Morse and David Tracy, was awarded the Best Non-Commercial Display. A bonus with the award is free booth space for the 1994 Trades Show!

This years Best Maple Syrup in Maine was expanded to include all the amber categories. The results are as follows: **Light Amber:** 1st, The Tracy Family, Maple Hill Farm, Farmington, ME; 2nd, Smith's Maple Products, Skowhegan, ME; 3rd, Mace's Maple Syrup, Readfield, ME. **Medium Amber:** 1st, Hall Farms, East Dixfield, ME; 2nd, Luce's Pure Maple Syrup, Arnold and Elaine Luce, Anson, ME; 3rd, L.A. Merrifield, South Paris, ME. **Dark Amber:** 1st, Maple Crest Farm, Kendall and Marilee Cooper, Buckfield, ME; 2nd, Luce's Pure Maple Syrup, Anson, ME. Also new to this year's contest was a Producers Award. This was determined by votes cast from member producers who tasted the various entries. The first annual Producers Award went to Hall Farms of East Dixfield for their medium amber syrup. Second went to Maple Hill Farm, and third to Luce's Pure Maple Syrup.

We'd like to thank Larry Myott for his comprehensive presentations during the annual meeting. Larry efficiently updated us on the Maple Promotion Board and organic regulations. He also presented a video from Paul Smith's College on Sugarbush management and discussed lease agreements, maple marketing orders, and pricing techniques for maple syrup. (What we'd really like to know is if he's wearing his Maine Maple Sunday sweatshirt!)

A spring newsletter from MMPA was sent out in early April. It was a bit late this year due to the Maine Department of Agriculture budget meetings. Like many states, Maine is facing unprecedented budget shortfalls and Agriculture is taking substantial hits. Targeted for elimination this year are the bulk of our non-dedicated revenues for marketing and production employees and programs. Needless to say, a variety of commodity groups were to be affected by the proposed cuts. Several days of testimony convinced our Legislative Agricultural Committee to find ways to restore the funding and eliminated positions. Currently, our programs seem secure but no one will truly relax until the final vote of the full Legislature is taken.

March 18 was AgDay in Maine and MMPA joined other commodity groups with displays at the Maine State House Rotunda. MMPA, along with the Agricultural Council of Maine was also instrumental in presenting a "Flavors of Maine" breakfast for the States Legislatures and others doing business with the State House on AgDay.

The breakfast was such a success it has plans to be expanded to include a full day of meals next year.

MMPA's participation in a cultural exchange with Japan last fall has led to several sales of pure Maple Syrup for producers here in Maine. A delegation from Japan will be staying in Hallowell, near Augusta, for a few weeks in May. We hope to have several opportunities to further their interests and introduce newcomers to the flavors of pure Maine maple syrup.

The 1993 production season was quite quick this year. Most producers south of Bangor waited weeks for a run. After a sleety,

cold and snowy weekend the sap dams let loose. Thus it was boiling 'round the clock for about a week straight and then the season was over. As with most agricultural ventures, you never know what Mother Nature will conjure up for us.

As 1993 continues MMPA plans to attend Farm Days in August and Fryeburg Fair in October. Other promotional activities will be included as time and participants will allow. As always, if you're travelling through Maine this summer stop and say Hi to a fellow maple producer. We're always willing to share a maple story or two!



## **BRODIES SUGAR BUSH**

***"MAPLE IS OUR ONLY BUSINESS"***



Small Brothers Evaporators - Offering all the new technology of the Thunderbolt Arch and the Hurricane Cross Reflective Arch, Piggy Back Pans, Vacuum Pumps, the new "Lil" Tapper and much more.

RO Machines                      "OO" and "F" Style Litho Cans  
Bacon & Sugarhill Jugs              Used Buckets & Covers  
Hydraclean Tubing Washers For Any Size Bush  
U.S. Maple Tubing, Maple Expert and Lamb Tubing  
G.H. Grimm Company Equipment and Supplies

Consignment Sales of Used Equipment  
Custom Tubing Setup and Technical Assistance

**HCR 75 Box 30  
Westford, N.Y. 13488**

**Phone: 607-264-3225**

# MAPLE & METAL

*A Winning Combination  
for Over 100 Years*



🍁 Beautiful 4 Color Maple Scene for Greater Consumer Appeal.

🍁 Much Longer Shelf Life.

🍁 Will Not Become Brittle and Crack at Low Temperatures.

🍁 No Oxygen or Moisture Vapor Transfer.

🍁 Rectangular, For Better Use of Shelf Space.

🍁 No Cancer Causing Compounds Used.

🍁 Don't Settle for Less — Maple Deserves the Best.

🍁 Warehouse Stock in Barre, Vermont

*For Cans • Cartons • Shippers • Labels*

FOR THE DEALER NEAREST YOU CONTACT US

## MAPLE SUPPLIES COMPANY

RTE. 302 EAST (Kenco Bldg.) P.O. BOX 895 • BARRE, VT. 05641

TELEPHONE (802) 479-1827

—DEALER INQUIRIES INVITED—

# YOUR AMERICAN MAPLE MUSEUM

By Fred Schneider

By the time you read this the Museum will have had its 16th annual reopening festivities. Each year, two people are inducted into the American Maple Hall of Fame but this year only Charles Bacon of Jaffrey Center, NH will have received this honor.

James Bocky of Somerset, PA was also selected by the NAMSC for induction this year but because he had recently undergone major surgery, with serious complications, he asked that his installation be delayed until next year. We at the Museum wish him well and hope that he is feeling much better.

Over the winter we have completed repainting the kitchen and arranging displays of newly acquired artifacts. All the Museum's artifacts have been entered into a computer data base for ready reference. It was a time consuming job and was completed by Janice Williams, our part time curator.

We are also planning to install a new steel door with panic bar on the rear entrance. This will be the last of the entry doors to be replaced, bringing the building into compliance with fire and building codes and will make the building more secure.

We expect to pay for the door with some of the money the NAMSC has agreed to contribute along with other recent donations. We sincerely thank those who have contributed to the Museum and their names or companies will be

inscribed on the board on the gift shop.

Finally, we were saddened by the passing of Lloyd Sipple in January. Lloyd was one of the spark plugs that got this Museum up and running and, as far as I know, only missed one reopening festival. As editor of the Digest he saw to the reporting of the induction ceremonies for the readers.

Lloyd was himself inducted into the Hall of Fame in May of 1981 and his efforts in helping select candidates for this great honor are sorely missed. In getting ready for this year's event we realized just how much he and Bob Lamb did to make sure things were properly arranged for the induction ceremonies.

Last year Lloyd presented Edward S. Doubleday of Newport, Vermont for induction into the Hall of Fame and this writer, as master of ceremonies, was proud to have introduced him as Mr. Doubleday's presenter.

While we shall miss Mr. Sipple's presence at the annual reopening ceremonies we shall always be aware of his efforts in establishing and promoting this truly international American Maple Museum and Hall of Fame.

## **ADIRONDACK MAPLE FARMS**

**Buying and Selling  
All Grades  
of Bullk Maple Syrup**

**518-853-4022  
FAX 518-853-3791**

# EFFECTS OF PRIOR PEAR THRIPS DAMAGE ON SAP AND CROWN CHARACTERISTICS OF SUGARBUSH MAPLES

T.E. Kolb and L.H. McCormick  
School of Forest Resources  
Penn State University

Until recently, the pear thrips, *Taeniothrips inconsequens* (Uzel) (Thysanoptera: Thripidae), was considered primarily an insect pest of fruit trees (Foster and Jones 1915, Bailey 1944). Pear thrips were first positively identified as causing damage to sugar maple (*Acer saccharum* Marsh.) in forest environments in the northeastern United States in 1980 (Laudermilch 1988). In the 1980s, heavy damage to sugar maple occurred for several years in the Northeast, with the greatest impacts in 1988 and 1989 (Parker 1991). Damage in Pennsylvania from this insect has occurred consistently since 1980, with the most extensive impact in 1988 (1.5 million ac.). Symptoms of pear thrips damage to sugar maple include undersized leaves that are tattered and yellowed, resulting in an unusually thin crown (Houston et al. 1990, Kolb and Teulon 1991). Factors that promote pear thrips damage to sugar maple leaf area include synchrony between budburst and insect emergence from the soil, and cool temperatures that slow budburst and lengthen the duration of feeding prior to leaf expansion (Kolb and Teulon 1991, Kolb and Teulon 1992).

While several research studies have addressed short-term impact of thrips damage on sugar maple physiology (Burns 1991, Kolb et al. 1991, Smith et al. 1991), longer term effects of thrips damage on sugar maple health and syrup production are poorly understood. We have measured sap sugar concentrations, sap volumes, and crown conditions of 56 sugar maple trees in a Pennsylvania sugarbush following a pear thrips attack in 1989 (Kolb et al. 1992). Trees in the sugarbush exhibited different degrees of damage, allowing assessment of the impact of damage on trees growing on the same site with similar management history. This paper presents the results of our measurements of sap sugar concentration, volume, syrup production, and crown condition over three years (1990-92) following the thrips attack in 1989.

## METHODS AND MATERIALS

### *Stand Condition*

The study site is a sugarbush in Somerset Co., Pennsylvania. The bush faces the northeast at an elevation of 2200 ft. Soil in the stand is classified as a Rayne-Gilpin silt loam. Sugar maple has been favored in the stand by periodic cuttings of larger stems of other species. Consequently, almost all dominant or co-dominant trees in the stand are sugar maples 80-90 ft. in height. Understory trees include sugar maple, black cherry (*Prunus serotina* L.), red maple (*Acer rubrum* L.), black birch (*Betula lenta* L.), and beech (*Fagus grandifolia* L.). Stand basal area in 1991 averaged 86 ft<sup>2</sup>/ac. Trees in the stand have been tapped yearly for maple syrup production for at least the last 50 years.

### *Pear Thrips Damage*

Light pear thrips damage was first noticed in the stand in 1988. In 1989, counts of adult thrips on branch samples from the middle or upper crown of 10 randomly selected co-dominant sugar maples in the stand averaged 13 per bud on April 28 and 7 per bud on May 12. Previous studies where pear thrips were confined on sugar maple buds and seedlings indicated that five adult thrips per bud is enough to cause foliar damage consisting of a reduction in leaf size, chlorosis, tattered leaf margins, and leaf cupping (Kolb and Teulon 1991, Kolb and Teulon 1992, E.E. Simons—PA Bureau of

Forestry—unpublished data). By late-May, many trees in the stand exhibited these foliar symptoms of thrips damage. In some cases, heavily damaged leaves dropped from the crown soon after budburst. Damage could not be explained by weather events such as late frost, and no other biological agents were observed that could have caused this type of damage.

Damage varied widely among sugar maples in the stand. In late June 1989, degree of damage of 56 trees in the stand was evaluated from the ground by two observers using five classes:

- very light — < 10 percent of foliage damaged
- light — 10 percent to 29 percent of foliage damaged
- moderate — 30 percent to 59 percent of foliage damaged
- heavy — 60 percent to 90 percent of foliage damaged
- very heavy — > 90 percent of foliage damaged

Number of trees in each damage class were: very light — 12, light — 9, moderate — 12, heavy — 18, and very heavy — 5. Diameter at breast height (DBH) of trees in each damage class averaged between 16 and 18 in. (individual tree range 9 to 30 in.), except in the very heavy class which averaged 22 in. (range 12 to 39 in.). Trees in the heavy and very heavy damaged classes produced few new leaves (refoliation) in 1989 following damage.

Stresses experienced by all study trees in the stand since the 1989 thrips attack include summer drought in 1991 and heavy flower production in 1992. Pear thrips were present in the stand in 1990 and 1991, but damage was generally light on all trees. In 1992, thrips damage was generally greater than in 1990 or 1991, and severity of damage varied among trees. No other substantial insect damage occurred in the stand from 1989–1992.

#### *Crown Condition*

Two measures of crown condition (transparency, dieback) were scored on all study trees in early June 1990–92. Crown transparency is the percentage of full sin light penetrating the crown. Dieback is the proportion of crown volume containing dead branches with tips less than 1 in. in diameter. Both measures were visually scored from the ground by two observers using the system developed for the North American Sugar Maple Decline Project (Millers et al. 1991).

#### *Sap Characteristics*

*Sap sugar concentration and volume were measured on all study trees every one to five days (depending on sap flow conditions) during the traditional sap collection season in 1990–92.* In late-February of each year, each tree was tapped twice using commercial taps. Sap from both taps on a tree was collected in a covered plastic bucket (5 gal. capacity). Measurements were made on 9 days between March 10 and April 2 in 1990, 28 days between February 24 and April 1 in 1991, and 22 days between February 21 and April 6 in 1992. On each sample day, volume of sap in each bucket was measured using a graduated cylinder in the late-afternoon or evening after the daily sap flow had ceased. The sugar concentration of a representative sample from each tree was measured in the laboratory within two hours of collection using a temperature compensating refractometer. In each year, average sugar concentration for each crown damage class over all days was used to determine the amount of sap needed to produce a quart of syrup by the “rule of 86” formula, which states that 86 divided by sap sugar concentration equals the number of quarts of sap required for one quart of syrup (Walters 1982). For each crown damage class, this quantity was divided into the average seasonal volume collection to calculate yearly syrup production. ➡

## RESULTS

### *Crown Condition*

Crown transparency differed significantly among damage classes for trees originally assessed in 1989 for the next two summers. In both years, average transparency was greater in the very heavy and heavy damage classes compared with the very light, light, and moderate classes (Figure 1). Transparency in all classes decreased from 1990 to 1991, indicating an improvement in crown condition. Changes in transparency from 1991 to 1992 were variable for 1989 damage classes. Transparency in 1992 did not differ significantly among damage classes. Further, there was poor correspondence in transparency values of 1989 damage classes between 1990-91 and 1992. Leaves from trees whose transparency increased from 1991 to 1992 were dwarfed, tattered, and yellowed in 1992 while those from trees whose transparency was constant or decreased were only lightly yellowed and near normal in size. This suggests that differences in transparency in 1992 resulted from differences in the severity of pear thrips damage.

Crown dieback in all years did not exceed 11 percent in any class and differences among 1989 damage classes were not statistically significant. In both 1990 and 1991, there was a trend of greater dieback with heavier 1989 damage which did not occur in 1992 (Figure 2). Small decreases in dieback occurred in all damage classes from 1990 to 1991, while changes from 1991 to 1992 were variable among classes.

### *Sap Characteristics*

Total per tree sap volume was considerably lower in 1990 than in 1991 and 1992 (Figure 3). Total per tree sap volume in all years was greatest in the very light 1989 damage class, intermediate in the light, moderate, and heavy classes, and lowest in the very heavy class. These differences were statistically significant on 13 collection dates in 1991 and 6 dates in 1992, but no significant differences occurred in 1990.

Sap sugar concentration averaged over all collection dates increased from 1990 to 1992 (Figure 4). There were small (0.1 to 0.3%) but statistically significant differences in sap sugar concentration among damage classes on two collection dates in 1990,

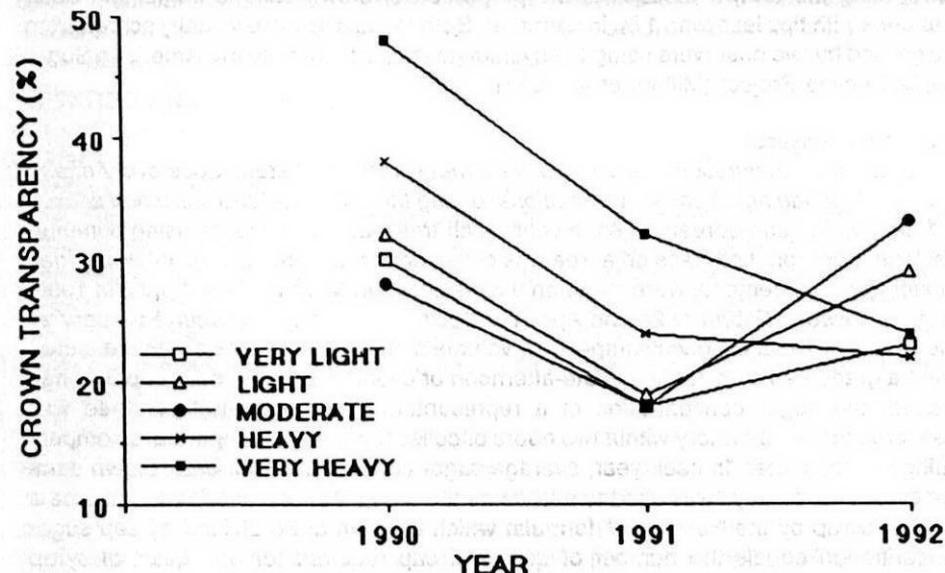


Figure 1. Crown transparency of sugar maples from five 1989 pear thrips damage classes in June 1990, 1991, and 1992. Each value is the average of 5 to 18 trees. ➤

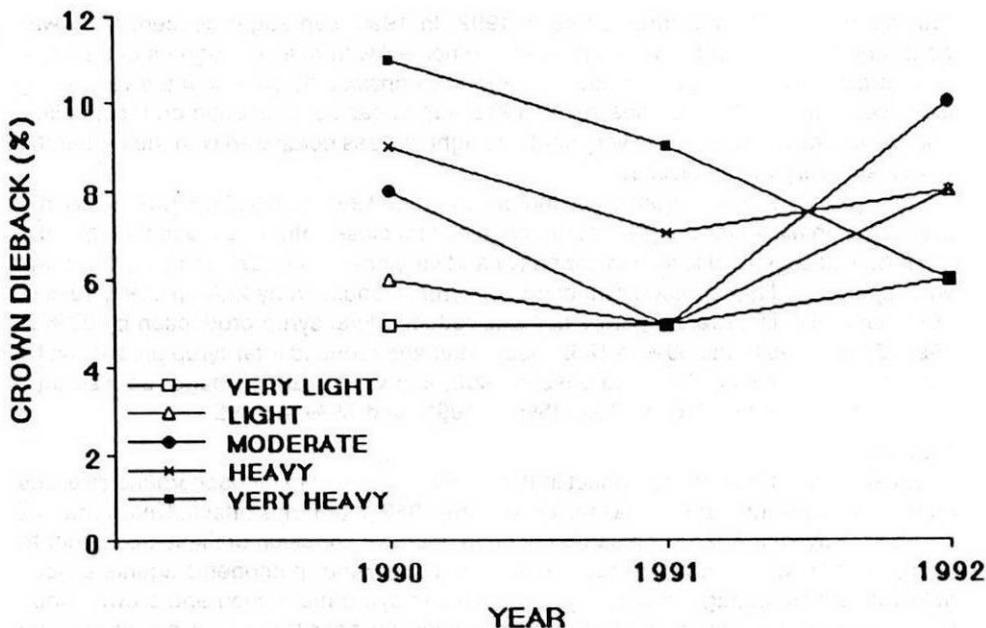


Figure 2. Crown dieback of sugar maples from five 1989 pear thrips damage classes in June 1990, 1991, and 1992. Each value is the average of 5 to 18 trees.

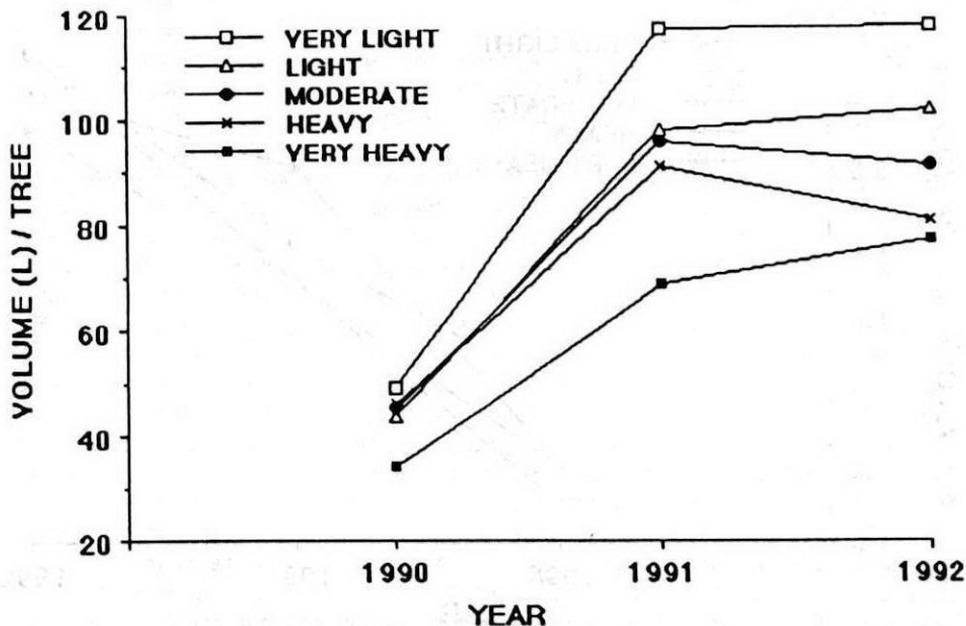


Figure 3. Total per tree sap volume of sugar maples from five 1989 pear thrips damage classes for the 1990, 1991, and 1992 sap seasons. Values in each year are averages over several dates and trees (n = 5 to 18 trees per class).

four dates in 1991, and three dates in 1992. In 1990, sap sugar concentration was consistently greater in the very light class compared with heavier degrees of damage. In contrast, sap sugar concentration in 1991 was consistently greater in the very heavy class compared with other classes. In 1992, sap sugar concentration on most collection dates was greatest in the very light and light classes compared with the moderate, heavy and very heavy classes.

Total per tree syrup production increased from 1990 to 1992 (Figure 5). Syrup production in all years was greatest in the very light class, intermediate in the light and moderate classes, and lowest in the heavy and very heavy classes. Compared with the very light class, light damage reduced total syrup production by 26% in 1990, 19% in 1991, and 16% in 1992; moderate damage reduced total syrup production by 23% in 1990, 24% in 1991, and 30% in 1992; heavy damage reduced total syrup production by 19% in 1990, 28% in 1991, and 39% in 1992; and very heavy damage reduced total syrup production by 40% in 1990, 35% in 1991, and 39% in 1992.

## DISCUSSION

Our analysis of pear thrips impact in this study assumes similar background stresses on trees in different damage classes prior to the 1989 pear thrips attack. Unfortunately, we do not have information on sap production or crown condition of these trees prior to 1989. Further, we cannot rule out the involvement of other pathogenic agents associated with thrips damage in causing differences in syrup production and crown condition. For example, sugar maple leaves damaged by pear thrips can be infested by anthracnose fungi (Nash et al. 1991), which could further damage leaf area and function. Defoliation can also predispose sugar maples to attack by the fungus *Armillaria mellea* (Wargo 1972). With these caveats, our data suggests that heavy pear thrips damage in 1989 reduced maple syrup production in this sugarbush over the next three years following attack.

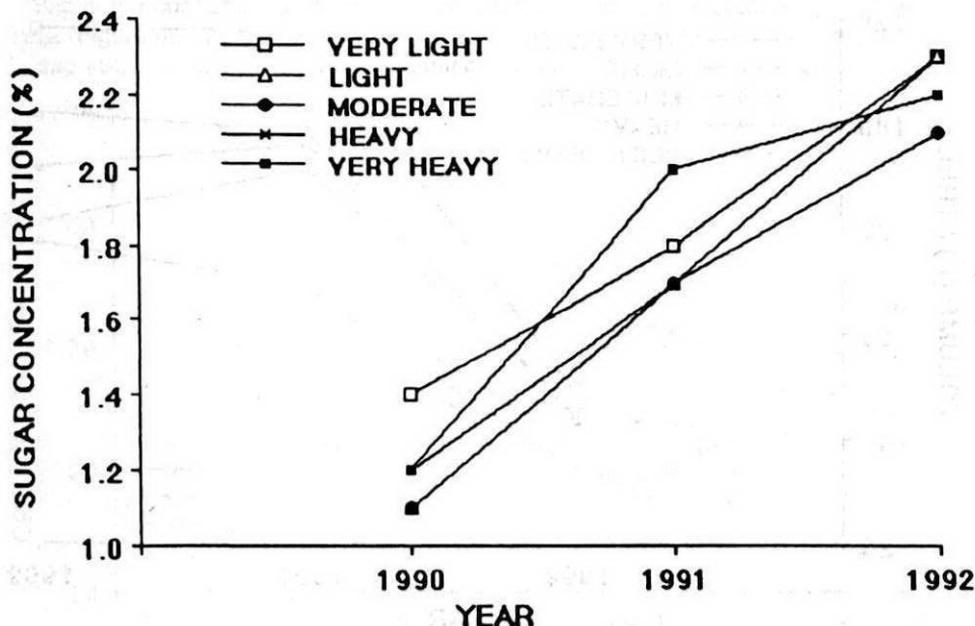


Figure 4. Sap sugar concentration of sugar maples from five 1989 pear thrips damage classes for the 1990, 1991, and 1992 sap seasons. Values in each year are averages over several dates and trees ( $n = 5$  to 18 trees per class).

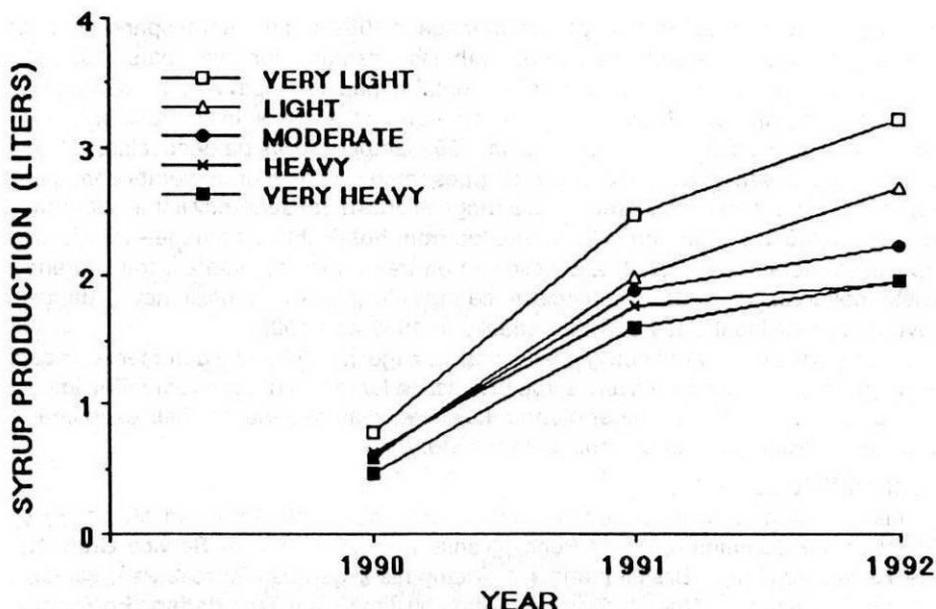


Figure 5. Total per tree syrup production of sugar maples from five 1989 pear thrips damage classes for the 1990, 1991, and 1992 sap seasons. Values in each year are averages over several dates and trees ( $n = 5$  to 18 trees per class).

Sap volume and sugar concentration in the three years following the 1989 thrips attack were generally greater for trees with light damage compared to trees with heavy damage. Trees in the very heavy damage class were the only exception to this trend, where sap sugar concentration in 1991 was greatest of all classes. Elevated sap sugar concentrations have been previously reported for heavily defoliated or declining sugar maples (Gregory and Wargo 1986, Herrick 1988). Elevated sap sugar concentration may represent a physiological response to defoliation or dieback, perhaps related to mobilization of carbohydrates associated with refoliation and crown replacement. Lower sap volume and/or sugar concentration in trees with moderate to very heavy thrips damage reduced calculated syrup production by 19–40 percent in the first season following damage, 24–35 percent in the second season following damage, and 30–39 percent in the third season following damage, with the greatest reductions occurring in the most severely damaged trees.

Sap volume, sugar concentration, and syrup production were considerably lower in 1990 than in 1991 or 1992. Many sugarbush operators we interviewed in Pennsylvania stated that syrup production was lower in 1990 than for any year on record. Poor production in 1990 may have resulted from unusually warm temperatures that occurred between late-February and late-March during sap collection. Record high temperatures were measured throughout Pennsylvania on several dates during this period and hard freezes were uncommon. Periodic thawing or frozen xylem is required to sustain dormant-season sap volume flow from sugar maple stems (Tyree 1983, Johnson et al. 1987), and enzymes that convert starch to sugar in sugar maple xylem are active at temperatures slightly above freezing (Marvin et al. 1971). Warm temperatures also promote the growth of micro-organisms in taps and tubing that can reduce sap sugar concentration and volume. Given the results of this study, it is also likely that heavy thrips damage that occurred in many Pennsylvania sugarbushes in 1988 and 1989 also reduced syrup production in 1990.

⇒

Trees with very heavy or heavy thrips damage in 1989 had more transparent crowns and slightly more dieback than trees with less damage for two years (1990-91) following the attack. This indicates detrimental impacts of heavy thrips damage on crown health in this sugarbush for two years following the attack. In contrast, only small differences in transparency occurred in 1992 among 1989 damage classes, and slightly greater values were measured on trees rated with light or moderate damage in 1989. Visual observations of trees with a range of crown transparency in the sugarbush in 1992 suggested that high values resulted from heavy thrips damage—foliage was typically undersized, tattered, and yellowed on trees with the greatest transparency. These observations of damage occurrence indicate a lack of consistency in damage severity to individual trees between attacks in 1989 and 1992.

In our study, one year of heavy pear thrips damage in 1989 had a detrimental impact on sugar maple crown health and syrup production for the next three years. The impact of pear thrips damage on other stands, however, may depend on their exposure to previous stress agents and management history.

### ACKNOWLEDGEMENTS

This research was supported by funds from The North American Maple Syrup Council, The Commonwealth of Pennsylvania, and USDA Forest Service Grant No. 23-476. We thank Ron Brønneman for providing his sugarbush for research. Valuable technical assistance in the study was provided by Jim Finley, Dale Jeffery, Ed Simons, Brian Arnold, Elizabeth Vail, Durland Shumway, Rob Hellested, Chris Kilbride, Scott Burroughs, Dennis Hanvey, Jennifer Hanvey, Stacey Green, Matthew Miller, Amy Tyndall, and Robert Pfaff.

### LITERATURE CITED

- Bailey, S.F. 1944. The pear thrips in California. Univ. of Cal. College of Agr. Exp. Sta. Bull. No. 678.
- Burns, B.S. 1991. Root starch in defoliated sugar maples following thrips damage. Pages 257-265 in B.L. Parker, M. Skinner, and T. Lewis (eds.), *Towards Understanding Thysanoptera*. USDA For. Ser. Gen. Tech. Rep. NE-147.
- Foster, S.W., and P.R. Jones. 1915. The life history and habits of the pear thrips in California. USDA Bull. No. 173.
- Gregory, R.A., and P.M. Wargo. 1986. Timing of defoliation and its effect on bud development, starch reserves, and sap sugar concentration in sugar maple. *Can. J. For. Res.* 16: 10-17.
- Herrick, G.T. 1988. Relationships between soil salinity, sap-sugar concentration, and health of declining sugar maples (*Acer saccharum*). *Ohio J. Sci.* 88: 192-194.
- Houston, D.R., D.C. Allen, and D. Lachance. 1990. Sugarbush management: a guide to maintaining tree health. USDA Gen. Tech. Rep. NE-129.
- Johnson, R.W., M.T. Tyree, and M.A. Dixon. 1987. A requirement for sucrose in xylem sap flow from dormant maple trees. *Plant Physiol.* 84: 495-500.
- Kolb, T.E., L.H. McCormick, and D.L. Shumway. 1991. Physiological responses of pear thrips-damaged sugar maples to light and water stress. *Tree Physiology* 9: 401-413.
- Kolb, T.E., L.H. McCormick, E.E. Simons, and D.J. Jefferey. 1992. Impacts of pear thrips damage on root carbohydrate, sap, and crown characteristics of sugar maples in a Pennsylvania sugarbush. *For. Sci.* 38: 381-392.
- Kolb, T.E., and D.A.J. Teulon. 1991. Relationship between sugar maple budburst phenology and pear thrips damage. *Can. J. For. Res.* 21: 1043-1048.
- Kolb, T.E., and D.A.J. Teulon. 1992. Effects of temperature during budburst on pear thrips damage to sugar maple. *Can. J. For. Res.* In press.
- Laudermilch, G. 1988. Thrips in Pennsylvania. Pages 36-62 in B.L. Parker, M. Skinner, and H.B. Teillon (eds.), *The 1988 thrips infestation of sugar maple*. VT Agr. Exp. Sta. Bull. 696, Univ. VT, Burlington.
- Marvin, J.W., M.F. Morselli, and M.C. Mathes. 1971. Rapid low temperature hydrolysis of starch to sugars in maple stems and in maple tissue cultures. *Cryobiology* 8: 339-344. ➤

- Millers, I., D. Lachance, W.G. Burkman, and D.C. Allen. 1991. North American Maple Project Cooperative Field Manual. USDA For. Ser. 43 p.
- Nash, B., G. Stanosz, G. Taylor, and D. Davis. 1991. Association of a fungus with overstory sugar maple leaves injured by pear thrips in Pennsylvania. *Phytopathology* 81: 123 (abstract).
- Parker, B.L. 1991. The pear thrips problem. Pages 179-188 *In* B.L. Parker, M. Skinner, and T. Lewis (eds.), *Towards Understanding Thysanoptera*. USDA For. Ser. Gen. Tech. Rep. NE-147.
- Skinner M., B.L. Parker, and S.H. Wilmot. 1991. The life cycle of pear thrips, *Taeniothrips inconsequens* (Uzel) in Vermont. Pages 435-444 *In* B.L. Parker, M. Skinner, and T. Lewis (eds.), *Towards Understanding Thysanoptera*. USDA For. Ser. Gen. Tech. Rep. NE-147.
- Smith, G., C.M. Petersen, R. Van Driesche, and C. Burnham. 1991. The relationship between measures of tree vigor and pear thrips damage in sugar maple. Pages 273-284 *In* B.L. Parker, M. Skinner, and T. Lewis (eds.), *Towards Understanding Thysanoptera*. USDA For. Ser. Gen. Tech. Rep. NE-147.
- Tyree, M.T. 1983. Maple sap uptake, exudation, and pressure changes correlated with freezing exotherms and thawing endotherms. *Plant Physiol.* 73: 277-285.
- Walters, R.S. 1982. Sugarbush management. Pages 25-37 *In* Sugar maple research: sap production, processing, and marketing of maple syrup. USDA Gen. Tech. Rep. NE-72.
- Wargo, P.M. 1972. Defoliation-induced chemical changes in sugar maple roots stimulate growth of *Armillaria mellea*. *Phytopathology* 62: 1278-1283.

# WATERLOO USA INC.

**EVERYTHING YOU NEED** — from sap collecting equipment, vacuum systems, reverse osmosis machines and evaporators to filtering, canning and candy making equipment!

**PLUS** — Expert advice to help you maximize the efficiency of your operation whether you are a large commercial producer or a backyard sugarmaker.

**CALL NOW FOR EARLY ORDER SPECIALS**

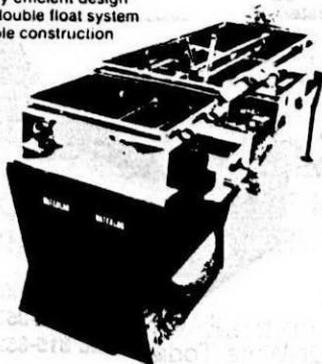
## Evaporators

### THE HIGH PERFORMANCE OIL-FIRED "WATERLOO 7"

- Double heavy gauge metal walls
- Reinforced structure
- Fully insulated with heat resistant padding
- New 2300 F ceramic blankets for maximum heat reflection
- High efficiency industrial burners

### "WATERLOO REVERSE FLOW"

- High evaporation capacity
- Energy efficient design
- Safe double float system
- Durable construction



**Seprotech**  
SYSTEMS INCORPORATED

## Reverse Osmosis Machines

- Increased efficiency
- Reduced energy costs
- Proven high efficiency membranes
- The only membranes made specifically for the maple industry
- After purchase service

# WATERLOO

# WATERLOO USA INC.

HCR 63 BOX 35A  
Barton, Vermont 05822  
Telephone (802) 525-3588

Robinson Road  
Merrill, Wisconsin 54452  
Telephone (715) 536-7251

## NEWS FROM MASSACHUSETTS

By Tom McCrumm

The 1993 maple season for Massachusetts was about as unspectacular as it was for most of the northeast maple region. On the average, about a half a "normal" crop was made, much the same as the areas major producers, New York, Vermont, and Quebec. Compared to last years bumper crop, this years overall maple crop will probably be somewhat less than half of last years because many producers cut back on taps set. This was due primarily to leftover syrup from last year, low bulk prices, and deep snow. Some producers didn't tap at all.

Producers success around the state seem very spotty. Some made 15-20 percent of a crop, and a few did 80-100 percent. The flavor was excellent, and the grade varied a lot. The warm weather coming during the big run in April quickly caused the color to darken. Some producers made a little light and medium amber in March, then went back up in grade at the start of the big run, only to see the color darken quickly as warm sap sat in tanks waiting to be boiled.

The best story of the season comes from a neighbor here in Ashfield. During the heavy run the first week of April, David and Diane Lanoue had their wood fired evaporator boiling for 4 1/2 days non-stop. Assisted by David's brother,



### **Countryside Hardware & Recreation, Inc**

DeRuyter, N.Y. 13052

**Everything  
For The Producer,  
Large Or Small**



- ★ Storage & Gathering Tanks
- ★ Sap Buckets, Covers
- ★ Lamb Tubing & Fittings
- ★ Gas Tree Tappers
- ★ Metal Decorated Syrup Cans
- ★ Sugarhill Plastic Jugs
- ★ Bits, Filters, Spouts
- ★ Rubber Candy Molds
- ★ Leader - King - Grimm Evaporators
- ★ Maple Cream Tubs

Give your  
present evaporator  
up to  
70% more  
capacity with  
a new  
steamaway  
unit



Open  
Daily

8:00 - 5:00

Phone: 315-852-3326

and 315-852-3327

U.P.S. Daily, Call Or Write Today  
For Our Catalog

they boiled in shifts from Monday morning until Friday afternoon. They were lucky to produce a little over a quart per tap!

On the price scene—it seems that this years lowered production throughout the northeast, and especially in Quebec, has already had an upward push on bulk prices of light and medium amber syrup. Overall, the low retail prices of this past year should be history as excess syrup gets bought up by producers needing to supplement to their own lowered production. As of the end of April, the current purchase price for bulk syrup is: Light Amber \$1.30/lb., Medium \$1.15/lb., Dark \$1.00/lb., and Grade B \$.85/lb. Please note however, that

these prices will not stabilize for a month or so. The guess is that Light Amber will go up and Grade B will go down.

Those of you who are selling your syrup for \$25-\$30 dollars a gallon are devaluing the image of our hard earned speciality food product, and are devaluing your own hard efforts in production. Maybe its time to raise your prices a bit to reflect the true value of your product.

Mass. Maple was very much in the news this season. Over 50 newspapers in the state carried articles about the Massachusetts maple season, and three of our members had TV crews at their



**FOR SALE  
BULK MAPLE SYRUP**

**MADE IN N.Y. STATE**

All Grades • Fair Prices  
One to 100 BBLS, to-help you  
Keep Your Customers Satisfied.

**NORTHERN N.Y. MAPLE  
PRODUCERS' CO-OP  
CROGHAN, NY**

Haskell Yancy (Pres.) 315-346-6356  
Ashley Marolf 315-346-6630

**A Great Maple Gift!  
"THE MAPLE  
SUGARING STORY"  
\*\*AWARD WINNING\*\*  
28 Min. VIDEO \$29.95 Ppd.  
90 Pg. GUIDE \$4.50 Ppd.**

**VT residents add 5%  
Please send check or  
money order, along with  
U. P. S. address to:  
PERCEPTIONS, INC.  
R. R. 1 Box 1590 D  
Charlotte, VT 05445  
(802) 425-2783**

*Schambach, Maple Inc.*

**IPL TUBING  
COSTER SAP CONCENTRATORS  
COMPLETE LINE OF MAPLE SUGARING EQUIPMENT  
WHOLESALE AND RETAIL**

13030 Rt. 39  
Sardina, New York 14134  
716-496-5127

sugarhouses from Boston channels, 56, 4 and 5. Most of the newspaper articles listed the maple phone number or the association address, and as a result I answered over 400 requests for our sugarhouse directory. The breakdown on individual directory mailings was: January 9, February 113, March 275, April 9. In addition, a few thousand were distributed in bulk to the state highway information booths, local tourist attractions, chambers of commerce, libraries, the Mass. office of Travel and Tourism, and the Mass. Department of Food and Agriculture. Just recently the directories were available at the Governor's Conference on Travel and Tourism, the New England Dairy and Deli Association trade show in Boston, and the Northeast Food Service and Lodging Exposition, also in Boston. This directory is our best piece of advertising, and is available free to all members. Please be sure your local library and tourist information booth have a pile of them before each season.

The best promotion for us this year came from an Associated Press wireservice story that went

out of the Springfield AP office and featured maple sugaring in Massachusetts. This story was carried by thousands of newspapers around the country. As a result of the AP story I was interviewed about sugaring in Massachusetts by AP network news headquarters in New York City, USA Today's Sky Radio (broadcast worldwide), and by National Public Radio's evening news program "All things Considered." The NPR piece was the feature story on April 7th, and I was able to inform millions of people across the country that Massachusetts did indeed make maple syrup!

Now is the time to check your

## **MAPLE LABELS**

All required information on one  
Pressure-Sensitive Label for

### **SYRUP, CREAM OR SUGAR**

Use on Plastic Jugs,  
Metal & Glass Containers  
Fancy & 2 Color Labels Available  
For Color Samples & Prices  
**WM. L. CHALMER ASSOC.**

P.O. Box 20440, Cleveland OH 44120

216-291-4897

1-800-847-6016

½ orders now available for  
small producers

**DEALER INQUIRIES INVITED**

## **COONS MAPLE SUPPLIES**

AUTHORIZED GRIMM DEALER

Lamb & U.S. Maple Tubing  
Waterloo Evaporators  
Sugarhill & Kress Jugs  
Maple Syrup Cans  
Brooks Filter Press

### **CHARLES COONS**

P.O. Box 377, Monticello Road  
Richfield Springs, N.Y. 13439  
(315) 858-2781

## **EVAPORATORS & SUPPLIES**

New & Used

**LAMB TUBING & FITTINGS**  
ORDER EARLY & SAVE

ROGER C. SAGE

4449 SAGE ROAD

WARSAW, N. Y. 14569

Tel: 716-786-5684

## NY MAPLE TOUR

The 1993 New York State Maple Tour will be held in St. Lawrence County in Northern New York on Monday and Tuesday, July 19 and 20th. The tour will be based at Clarkson University in Potsdam, where the banquet and evening program will take place.

St. Lawrence County is located northwest of the Adirondack Mountains and borders the St. Lawrence Seaway with Canada. The broad valley and highlands of this region feature many interesting points in agriculture, forestry, industry and recreation. The St. Lawrence County Maple Producers Association has been working since last year on this tour and is confident that it will be worthwhile.

Pre-registration will be very im-

portant and participants should pre-register by July 2 to expedite arrangements. Further details such as schedule, registration forms, lodging (specially available at Clarkson University for very modest cost) will follow very soon.

Please mark these dates! For more information contact Steve VanderMark at Cornell Cooperative Extension of St. Lawrence County at 379-9192 or write Cornell Cooperative Extension, Ag Program, 125 Main Street East, Canton, NY 13617.

---

**DEADLINE FOR  
OCTOBER ISSUE  
IS SEPTEMBER 1**

---



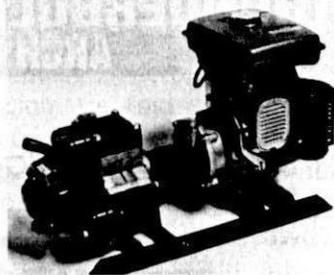
## Sugar Bush Supplies Co.

1934-1993

*59 years of service to the sugar-maker*

Offering a full line of maple supplies including:

- **Leader, King, Vermont, and Grimm** evaporators and equipment, new and used;
- **Springtech** reverse osmosis machine;
- **Lamb Naturalflow** tubing system;
- **"NEW" SBS** self-contained sap vacuum pump system--the simple answer to vacuum tubing;
- **Tanaka** pumps and tappers;
- **Bacon** jugs in All-state, Indiana, Michigan, Ohio and Wisconsin label designs;
- Full line of tin and glass syrup containers in stock;
- **Autumn Leaf** syrup cans, labels and sugar boxes.



Call or write for complete catalog

### Sugar Bush Supplies

2611 Okemos Road  
Mason, MI 48854  
(517) 349-5185

**We buy and sell Pure Maple Syrup and maple products.**

# Turn Over a New Leaf



## ORDER EARLY AND SAVE!

Place your order before July 1st, and take advantage of our early order discount on all equipment manufactured by Small Brothers

Look for These Names in Energy Saving Equipment



Call Us Today For More Information

# SMALL Brothers USA

802/863-3188  
800/363-8338

Rte 78 East, PO Box 714  
Swanton, Vt. 05488



# 1993 OHIO MAPLE INSTITUTE

By Tom Hoffman

This year's Maple Institutes were held in three different locations around the state during the month of January. The Central Ohio meeting, which had traditionally been held in December at Mt. Gilead, was changed to late January so the program presenters and equipment representatives could participate in all the meetings within a one week period.

The NAMSC report was given by delegate Ture Johnson and covered subjects ranging from research reports, to possible promotion boards to the council's stand on "organic" syrup. The status of the surplus of syrup was given by IMSI representative Paul Richards.

Guest speaker Sumner Williams, of the Proctor Maple Research Center, reported on the results of their tests on metal and plastic containers. (Reported in the February issue of the Digest.) It was interesting to be able to view first hand, the cut away samples of the various containers. His observations gave us all something to think about.

The most recent information on the continuing sugarbush health survey was given by Dr. Robert Long of the School of Natural Resources of the Ohio Agricultural Research and Development Center in Wooster. He had good news for Ohio Sugarmakers when he reported that the health of maples in Ohio is generally quite good. Trees that are stressed are usually those that have been subjected to dam-

age from tractor or horse gathering or overgrazing. The data seems to indicate that woods that are tapped using tubing are healthier than bucket woods. We in the maple industry were sorry to hear that Dr. Long will be moving to the U.S. Forest Service in Delaware, Ohio. In recognition for his contributions to research benefiting the maple industry, Dr. Long was presented with a plaque and commendation by the Ohio Maple Producer's Association.

A presentation titled "How to Destroy Maple Syrup," stressing the quality goals for maple products, was made by Dr. Randy Heiligmann of The Ohio State University. Producers were reminded of the little things, from drilling the taphole to bottling the finished syrup, that all contribute to producing a superior product.

After lunch, Sumner Williams told of the changes at Proctor since rebuilding after the fire. Recent developments in maple equipment were shown and Sumner shared his experience with some of these new items.

The days keynote speaker was Keith Smith, Director of Ohio State Extension. He told of the importance of Extension in bringing up-to-date information to all members of the agricultural community as well as providing urban dwellers with helpful household information.

Barbara Drake, Extension Agent with Ohio State University, presented the results of a survey taken on Consumer Attitudes toward Maple Syrup Grade Names. It was found that people who are not

knowledgeable about maple grades often choose a grade that may not be most to their liking. After taste tests, survey participants were asked to make one word descriptions for each syrup. Rather than using light, medium, or dark to describe each type of syrup, the participants used delicate and mild,

mapley and lasting, strong and heavy. In conclusion, it may be worth considering using delicate, standard and hearty in place of the traditional grade names to help new maple customers choose the syrup they will be most happy with.

# It's worth it.

## To Stop By Bascom's...

We have an incredibly large inventory to choose from right here at the Sugar House showroom. And although we are a little off the beaten path you won't be disappointed that you took the time to stop by.

### Just look what's in stock...

#### LEADER, GRIMM, SMALL BROTHERS

- EVAPORATORS • GATHERING & STORAGE TANKS
- FILTERING EQUIPMENT • ACCESSORIES • LAMB & US MAPLE TUBING
- BUCKETS • SUGARHILL JUGS • SYRUP CANS & GLASS BOTTLES
- DRUMS • REVERSE OSMOSIS - OSMONICS, SPRINGTECH AND SAP BROTHER • PLUS MANY USED PIECES OF EQUIPMENT

## To Call Bascom's Today...

We always have personnel on the premises to take your mail order or give you expert technical information. We ship UPS daily from our large inventory.

### Specials

- Osmonics Reverse Osmosis Machine—Good Condition, 600 gph flow, 5 years, with warranty ..... \$8,500
- Osmonics Reverse Osmosis Machine—Good Condition, 300 gph flow, 7 years, with warranty ..... \$5,200
- 3 1/2' x 12' Small Brothers stainless evaporator with preheater hood, like new ..... \$4,400
- 3' x 10' Vermont evaporator with tin pans and retinned arch .... \$2,050
- 30 barrel round bottom tank, like new ..... \$700
- 6' x 7' Tin King flue pan & preheater ..... \$1,500
- 4' x 14' set of Leader tin pans ..... \$1,200

**Maple Syrup:**  
Will accept drum syrup  
in trade for equipment



**RR1, Box 137, Alstead, NH 03602**  
**603/835-6361 or 603/835-2230**  
**FAX# 603/835-2455**

Free Catalogs Available  
OPEN MON.-FRI. 7:30-5:00  
SAT. 8:00-12:00

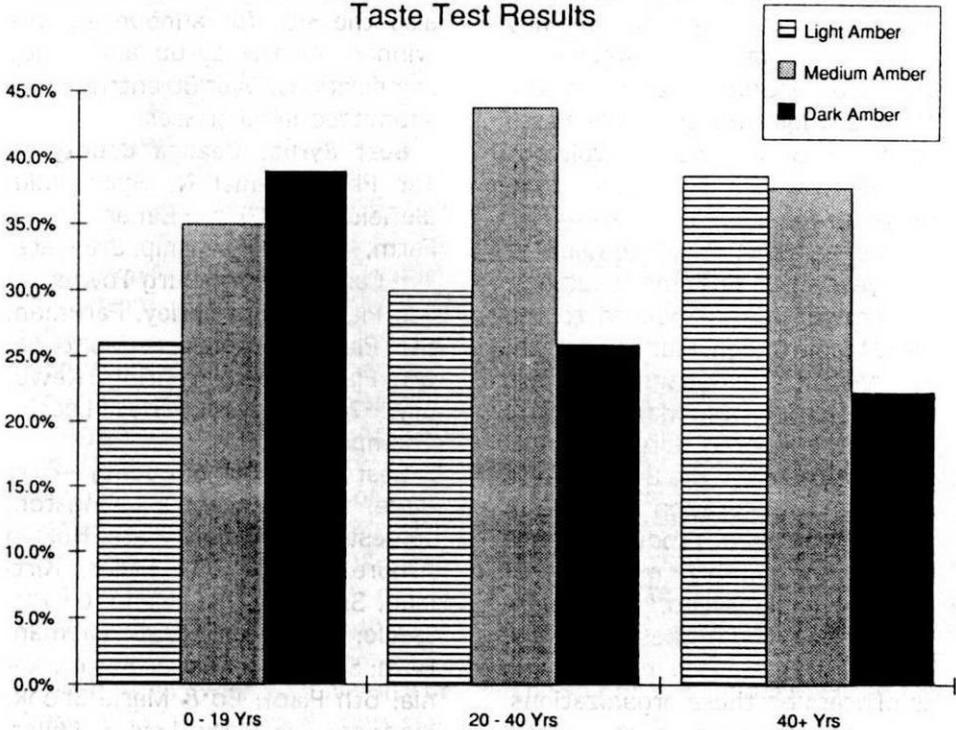


# SURVEY RESULTS

Shown below is the results of a survey conducted at a maple festival held at Whitesboro, Oneida County, NY on April 25, 1992.

This is based on 77 taste tests for 0-19 years old; 73 taste tests for 20-40 years old; and 98 taste tests for 40 years old and older.

Taste Test Results



EDITOR'S NOTE: This may not be classified as "scientific" but nonetheless it is quite interesting.

## WANTED: WHOLE MAPLE PRODUCERS

We want maple syrup producers who understand & practice earth stewardship & organics.

If you can supply us, please respond in writing to:

**CECIL WRIGHT**  
1434 Fairview Avenue  
Columbus, Ohio 43212

## CLUTE BROTHERS

- \* Maple Supplies
- \* Grimm Equipment
- \* Lamb Tubing
- \* Bacon Jugs

Lane Clute  
405 Clute Road  
Naples, NY 14512  
(716) 374-6371

## 64th GEUGA COUNTY MAPLE FESTIVAL

By Tom Hoffman

What do log sawing, ax throwing, line dancing and bath tub races have to do with maple syrup? They are all part of a full weekend's worth of activities found at the 1993 Geauga County Maple Festival. Saturday was wet and cold but a beautiful Sunday more than made up for it.

Prior to the announcement of this year's Hall of Fame inductees, the crowd was introduced to the 1993 Maple Queen, Mary Grantham of Chardon. This year's inductees were Lawrence and Mattie Battles and Harry Modroo. Life long residents of the area, the Battles were the fourth generation to farm in the Chester area, producing fruit, vegetables, poultry, milk and of course, maple syrup. They were both active in the Chester Grange and Farm Bureau council, serving as officers on these organizations. Lawrence was also on the School Board and Coop Board.

Harry Modroo has lived on the same farm in Russell township his entire life. His parents moved to the farm using a bobsled, on Ground Hogs day, 1916. That was the first year the Modroos made syrup on the farm, and it was the worst year of production they ever had. Syrup has been made there ever since. Harry was a 4-H advisor for ten years and served on the first township zoning board. Still working full time on the farm, Harry always takes time to talk with customers at his farm market

and conducts school tours of the farm each Spring and Fall.

The Hall of Fame Luncheon was also the site for announcing the winners of the syrup and candy competitions. Over 80 entries were submitted in all classes.

**Best Syrup, Geauga County** — 1st Place, Daniel N. Byler, Middlefield; 2nd Place, Elmer Franks Farm, Auburn Township; 3rd Place, Jim Cermak, Huntsburg Township; 4th Place, Hilton Farley, Parkman; 5th Place, Ken Nelson, Montville; 6th Place, Lloyd Frohring, Newbury; 7th Place, Charles Lausin, Thompson.

**Best Syrup, Out of County** — 1st Place, Dave & Dennis Livingston, Jamestown, PA; 2nd Place, Holden Arboretum, Eli D.L. Miller, Kirtland; 3rd Place, Paul Rand, Garrettsville; 4th Place, Tom Hoffman, Bath; 5th Place, Charles Keiter, Xenia; 6th Place, Ed & Marje Shook, Madison; 7th Place, Levi E. Miller, Trumbull County.

**Best Syrup, Novice (under 300 taps)** — 1st Place, Roger Roseum, Chesterland; 2nd Place, Robert E. Simpson, Auburn Twp.; 3rd Place, Gerald Custer, Chardon; 4th Place, Charles M. Veleba, Bainbridge Twp.; 5th Place, Brian R. Grear, Auburn Twp.; 6th Place, Daniel D. Fisher, Middlefield; 7th Place, Rick Payne, Bainbridge Twp.

**Grand Champion, Candy** — Best combined score in 1 lb. brick, cream, granulated, 12 cakes and novel design. — Penny Timmons, Burton.

# **VERMONT MAPLE SUGARMAKERS' ASSOCIATION CELEBRATES 100 YEARS**

By Ray Foulds

The 100th Anniversary of the founding of the Vermont Maple Sugar Maker's Association was celebrated at the Vermont Farm Show in Barre on January 26. The program was attended by nearly 300 people and included everything from magic to motivational talks.

Speakers included Vermont Governor Howard Dean, Commissioner of Agriculture George Dunsmore and UVM College of Agriculture Dean Larry Forcier. Master of Ceremonies Philip Moore of Mendon kept the event on schedule and demonstrated some new maple techniques through the use of magic.

Ruth Ann Fowler, a University of Arizona Extension marketing specialist, presented an inspirational talk, called "Look Back, But Don't Stare." Fowler discussed honoring and toasting the past as well as remembering the best of the past, but suggested that we must move on to the future. She said we must develop new responses to the new challenges brought by the new consumer. The "toast" of the event was pure Vermont Fancy Grade syrup that was at each place.

A large anniversary cake, in the shape of Vermont, was shared by all. It contained some 35 pounds of maple sugar and syrup. Assistant Farm Show Manager, Jon Turmel,

presented the awards to the 1993 Farm Show maple products contests winners.

The Vermont Maple Sugar Maker's Association was founded in Morrisville, Vermont on January 12, 1893. The anniversary event was planned and carried out by Larry Myott, UVM Extension Maple Specialist, Carolyn Perley of Enosburg Falls and Jacques Couture of Westfield, directors of the association.

---

## **INDIANA NEWS**

By Dan Garner

Plans are going ahead for the 12 day demonstration and syrup sale at the Indiana State Fair. Several people have committed to sending along old time sugaring equipment for display. Also several folks have donated syrup for the sales project. The State Fair this year will run from August 11 through the 22nd.

The site of the annual meeting has been moved to Angola Indiana on December 4, 1993. More on this later.

Most producers that I have talked to report a very good crop this year. There were a couple of runs in January, followed by a short run in the first week of February. Then things froze up for about three weeks until the main run started around the first of March. At that point the sap ran for three weeks straight, and no one got much rest. By the first of April it was all over here in the South-Central part of Indiana.

Hope to see you all at the State Fair.

# CLASSIFIED

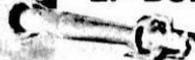
**FOR SALE:** Bulk and Retail Maple Syrup all grades, Maple products and Gift Baskets. IDEAL SWEETS 340 Rang Des Chutes Ham-Nord, Quebec, Canada GOP 1A0. *Phone/ Fax 1-819-344-2858.*

**FOR SALE:** Shriver 12" x 12" 18 plate cast iron filter press, No pump or motor \$800.00. Gerald Cushman & Sons 607-334-8688.

**FOR SALE:** 1,500 gallon stainless storage tank, insulated, enclosed, manhole access, for suction. \$750 f.o.b. Ashfield, MA 413-638-4533.

**FOR SALE:** 30" x 8' Leader Special evaporator w/preheater and wood saver, 3 years old. Alden, NY 716-937-9519.

## NATURAL GAS AND LP BURNERS



Manufactured by:  
Schambach Maple, Inc.  
Sardinia, NY  
(716) 496-5127

## PATRICK HILL MAPLE FARM

DAVID KOPP, PROPRIETOR

Pure Maple Products

Morris, NY 13808

1-800-62-MAPLE

Now Dealing Bacon Jugs  
Waterloo Dealer

WRITE FOR FREE BROCHURE

# 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, 1993 for consideration in 1993. Proposals received after that date will be considered in 1994.

(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.

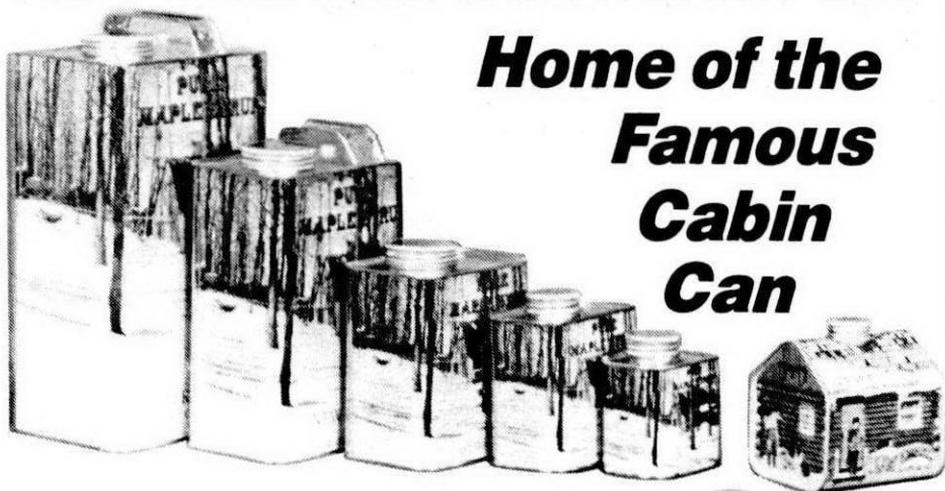
(6) Results or progress of funded projects must be presented annually at the convention of the NAMSC and must be published in the Maple Syrup Digest as soon as possible after completion.

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

Remember: July 1 Deadline.

# NEW ENGLAND CONTAINER CO.

## *Home of the Famous Cabin Can*



*Available to Ship Now!*

**2 Sizes Cabin Cans**

**16.9 oz. &**

**8.45 oz.**



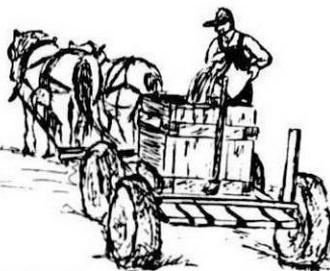
**ALSO OUR FULL LINE "OO" GALLONS  
TO HALF PINTS**

- We have the **BEST PRICES!**
- All cans in stock year round
- No lead in side seams



**Order Now!**

75 Jonergin Drive  
Swanton, VT 05488  
**802/868-3171**



# GRIMM

SINCE 1890

ALL AMERICAN

## DURABILITY BY DESIGN COMPARE BEFORE YOU BUY

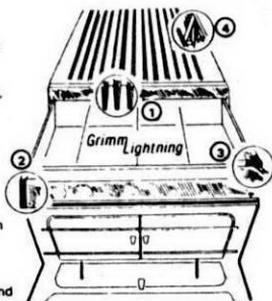
 **FASTER BOILING TIME**  
7% more flue area than 7 inch deep flues.

**LONGER ARCH LIFE**  
4 inch u channel reinforcement over 3 feet,  
prevents spreading.

 **STRONGER SEAMS**  
Double lock seam on pan corners.

 **SMOOTH  
REINFORCED CORNERS**  
Knuckle reinforcements used on all pan  
corners.

 **STRONGER PANS**  
Side wall reinforcement on pans 4 feet and  
longer.



**EVERYTHING  
FOR THE  
SUGAR MAKER  
SINCE  
1890**



P.O. Box 130  
Rutland, VT 05701

G. H. GRIMM - DIVISION OF  
LEADER EVAPORATOR CO. INC.

Phone (802) 775-5411

**LAMB** *Naturalflow*

## The Original & Backbone of Maple Tubing

34 years of Continual Improvements.  
Copied but never duplicated.  
The Product you can Depend on!

We have well over 100 special items  
just for Maple Sap Production, most  
of them manufactured ourselves.

**Lamb Naturalflow** *Naturally*

G. H. GRIMM CO.  
DIV. OF LEADER EVAPORATOR  
P.O. Box 130 Phone: 802-775-5411  
Rutland, VT 05701