MAPLE SYRUP DIGEST

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COVER PICTURE

Glenn Peases sugar house
Oxford, N.H.

Francis driving horses, grandson Gene helping to gather.

Editorial

Aren't you glad you're a maple producer?

I say this because I've been thinking of all the problems farmers have today. This is probably one of the toughest years farmers have had to face and most maple producers are connected with some other form of farming.

Take the milk business. I don't know much about it but I understand it's a mess. The government has been supporting the price but with the tax for promotion it's hard to make a profit. Beef isn't much better with the imports from Argentina and the drouth areas of the west selling off cattle by the thousands. Prices are down everywhere but in the supermarket.

The experts predict a big corn crop this year which will drop the price and corn isn't a cheap crop to grow. Small grains are already down. The oat crop is excellent but the grain isn't worth as much as the straw and poultrymen are losing money on every dozen eggs they sell.

Maple syrup has had it's ups and downs over the years but the government kept it's sticky fingers out of it, at least in the U. S. They didn't subsidize production when there was a shortage or support price's when a surplus existed. There have never been any quotas and most states don't require a license or permit to make and sell it. The surplus has vanished, prices have gone up considerably, and you can dispose of it as you please.

When you sell it retail, no one tells you how much or how little you can charge for it. If you choose to give it away at a low price, that's your business. You know how much your syrup's worth. That goes for charging a high price, too.

If you have to sell it in a drum, you aren't forced to sell to a certain buyer at his price. It keeps well enough for you to shop around or maybe hold it until the price goes up. After all, it's not milk.

Let's all hope and pray no one in congress ever decides to "help" the maple industry and, like I said before: Aren't you glad you're a maple producer?

GREETINGS FROM THE CHAIRMAN

Have any of you any idea where the summer went? If you find out where it went, also find out why it was so short!

In looking forward to the annual meeting in Pa., we have asked all delegates and committees to brief us as to what they will bring before the council. I hope this will allow us to do a better job in alloting council time and take care of important issues as they should be.

The Pa. people have been busy as beavers and promise to have a well organized meeting for us.

It would appear that maple sales are strong and prices have risen some. Maybe a small shortage of syrup in some areas.

I still believe there is a lot of room in the maple industry for expansion and for new people. No better way to end a winter than to be in the maple lot when the sap runs.

Go sharpen your bits!

Gordon Gowen

U.S. MAPLE

TUBING
CONNECTORS
SPOUTS

SPOUTS

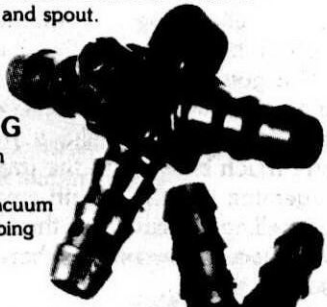
- Black color aids in rapid tap-hole thawing.
- For removal use 1" wrench or hammer.

SPOUT-PLUG

- Interconnection between "T" and spout.

SPOUT-PLUG

- Tight seal with spout allows pressure or vacuum washing of tubing in place.



CONNECTOR

- Will not pull apart.

"T's" & "Y's"

- Tapered with smaller first ridge for easier tubing insertion.

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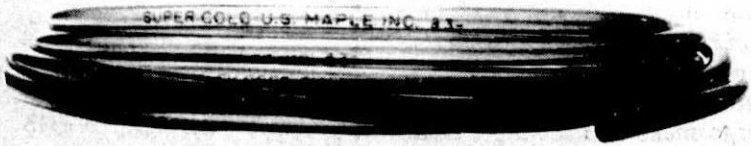

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Maple Syrup Supplies, P.O. Box 245, Potterville, MI 48876, 517/645-7305
Troy Firth, 136 Mechanic Street, Spartansburg, PA 16434

The Director Speaks

In the next few paragraphs I would like to try and give my definitions of duties and responsibilities of a good director, which I assume is like trying to forecast the weather.

What gives me the right, the reader might add, to think that I could shed some light on a subject like this? Their right; none.

First I would say: Be sincere, don't be swayed by friends, threats or bribery. Attend **all** meetings, be alert and informed on all the issues coming up before the board, have the courage of your convictions, if you believe in something, stand up and be counted.

We have those who always want change, change just for the sake of change could be a disaster. Don't ask for change unless you definitely have something better to offer.

I've been around a time or two of nit-picking on a certain proposition, which later on grew into a real problem. Don't be in a hurry to make a final decision.

If you are in a position where you are spending someone else's money, never feel too comfortable **spending** someone else's money.

I believe that if Directors in the past twenty years, in all phases of the farm community, had used the common sense God gave them, the farm sector would not be in the shambles it is today.

On October 20, 21, 22 all Maple Area roads in the U.S. and Canada should point toward Wellsboro, Pa., which will host the 1985 N.A.M.S.C.

Edward A. Curtis

Late information on program and reservations for the Council meeting may be obtained by calling Barbara Kinnan 717-724-1906 or evenings 717-376-2116

EFFECT OF FOREST TENT CATERPILLAR ON MAPLE FORESTS AND SUGAR BUSHES

A one-day field seminar was held on June 20th at the August Andersen Maple Farm to illustrate the importance of insect identification, detection and what can happen in sugar maple stands when insect populations reach very high levels.

The August Andersen Farm and other areas of Delaware County, New York, were hard hit with Forest Tent caterpillar in 1980, 81, and '82 and to a lesser extent Gypsy Moths and Eastern Tent Caterpillars during this same time period.

The resulting damage was devastating, Killing thousands of acres of hard woods within the County. This area had seen caterpillar populations rise from one year of moderate levels with little defoliation to the next year with extremely high levels and complete defoliation. The Forest Tent Caterpillar population grew so rapidly from one year to the next that trees within the regions of heaviest population levels were being completely defoliated within a matter of hours - not days or weeks.

It is not a simple thing to explain the reasons for the massive tree mortality that was experienced in the area, but it's easy to say that defoliation was the main reason. This fact combined with other secondary reasons is believed to have caused the massive loss that occurred. Such factors as: how fast the trees were defoliated; number of years they were defoliated; drought conditions, secondary insect pests; secondary fungi and bacteria; temperature change of the forest due to defoliation; degree of defoliation and many more.

Topics of the day's program were: Insect Detection and Identification, Possible Mortality or Decline to Sugar Maple Stands Resulting from Severe

Sprayed

Defoliation, Methods of Control and Economic Impact to Areas Receiving Severe Defoliation - these topics were covered by several specialists including: Dr. George W. Hudler, Asst. Professor Department of Plant Pathology, NYS College of Agriculture and Life Sciences, Cornell University; Dr. Douglas C. Allen, Forest Entomologist, College of Environmental Science & Forestry, Syracuse, NY; and Stanley R. Swier, Extension Specialist, Entomology/Pesticide Applicator Training, Cooperative Extension Service, University of New Hampshire, Durham, NH.

The day's events were very informative and eye-opening for the group of about 60 participants. In order to fully appreciate the damage done and the loss that has occurred, one must actually see for himself what has happened.

The one major recommendation that was made is to get out in the woods and spend some time each year detecting insects, identification and determining population levels. The second part of the recommendation is to most definitely plan a method of control (most likely aerial application of insecticides) if population levels reach the point of tree defoliation.

In general all insects that defoliate trees do not just occur over night but build in population over a 2-3 year period or can be detected by the adult stage before feeding damage by the larva occurs.

The economic loss of this type of situation is very hard to nail down but no doubt is extremely high.

If you have any questions regarding the defoliation of maple or any trees in general due to insects and would like more information, please feel free to contact me - Thomas Donnelly, Cooperative Extension Agent, P.O. Box 184, Hamden, NY 13782 (phone 607-865-6531 or 746-7147).

by: Thomas R. Donnelly, Cooperative Extension Agent Delaware County

Not Sprayed

Juan Reynolds and Mary Jo Janney at the 1985 Wisconsin Maple Festival where Mary Jo was crowned the new State of Wisconsin Maple Queen on May 26, 1985 at Aniwa, Wisconsin.

WISCONSIN 1985 MAPLE FESTIVAL AND SYRUP JUDGING

Somewhere around 3000 persons enjoyed pure maple syrup on potato and regular pancakes, together with sausage, cheese, milk and coffee on May 26, 1985 at Aniwa, Wisconsin. Reynolds Sugar Bush again hosted the Wisconsin Maple Syrup Producers Council festival which each year draws folks from all parts of Wisconsin and several other states.

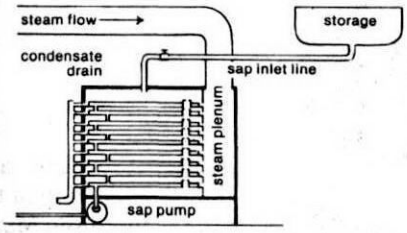
The crowning of the state maple queen is one of the highlights of the days festivities. This year the new queen is Mary Jo Janney who comes from a maple syrup producing family in Sauk City, Wisconsin. Mary Jo will represent the maple industry at functions throughout the state until next years maple festival when a new queen will be crowned.

Besides many educational exhibits, horse pulling contest, Wisconsin Polka music, a miniature sawmill, pony rides, etc., there is the judging of maple syrup.

A total of 42 maple entries were judged including out-of-state entries from Minnesota and Ohio. The syrup judging panel consists of three maple syrup producers with coordination from the University of Wisconsin Extension Forestry Specialist. Scoring is based on density, clarity, color and flavor. In addition, containers and labels for the entries are evaluated.

The 27 blue ribbon class, Wisconsin grade A entries were displayed at the Wisconsin State Fair in Milwaukee, Wisconsin in August. While at the State Fair all entries were identified by producer name to give recognition to those who had done an outstanding job in producing high quality maple syrup.

The purpose of the judging is not only to help the producer identify where they can make improvements but to serve as an educational tool, showing the standards of the industry, to the thousands of folks who witness the judging at the festival.



THE RAITHBY ECONOMIZER

With the big push to save on fuel costs one piece of equipment has not been given proper recognition. This is the Raithby Economizer. It is manufactured in Canada by Small Brothers and in the United States by Leader Evaporator.

The Economizer consists of a series of trays with sap 3/8" deep in them. These trays have a space beneath the sap to which the steam from the hood or hoods of conventional evaporators is piped. There is a steam plenum which feeds each tray. A tubeaxial fan draws air across the trays removing the steam from the sap very rapidly.

We purchased an Economizer for the 1984 maple season. A few minor changes were made for 1985, including a better pump to return the sap to a tank where it is float controlled to the evaporator. It has been a very good investment as we have more than recovered the cost of the unit and the installation and remodeling in two seasons.

Our operation before the Economizer consisted of three oil fired evaporators, two 5' x 10' with flue pans and one 5' x 14' arch with a 5' x 10' flue pan and a 5' x 4' flat pan for syruping. We also had, and still use, a 2' x 6' gas fired finishing pan. A preheater, under the first hood, has brought our sap to 190°. The 5' x 10' arches were fired at the rate of 12 gallons oil per hour, and the 5' x 14' at the rate of 14 gallons oil per hour. With this set up we were able to produce 10 - 10½ gallons syrup per hour on 2.0 - 2.1% sap. With the installation of the Economizer one 5' x 10' arch was taken down. The firing rate of the two remaining arches was unchanged. With the new set up we are able to produce 11 - 11½ gallons syrup per hour with sap of comparable sugar content.

Some of the key points for operating an efficient Economizer are a good preheater and insulation of steam hoods and pipes. One problem encountered was the gaskets between the pans and the steam plenum. We have flanges designed to protect the gaskets for the 1986 season. The efficiency drops considerably when the pans are not kept tight to the plenum. The only negative factor is that the Economizer works only when the evaporators are in operation. A minor item when compared to the initial investment.

The Economizer with its lower initial investment and low maintenance has proven to be the most cost effective energy saving unit, on the market at this time, for our operation. We believe this would hold true for most any syrup maker. If no evaporators are eliminated the boiling time would be greatly reduced as well as a 45% plus saving in fuel.

Lyle & Arthur Merle
Merle Farms

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	Over 5m	Case Lot	Packed
Gallon	$1.10	$1.20	50/case
½ Gal.	99¢	$1.08	50/case
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Pints	69¢	76¢	200/case
½ Pints	68¢	74¢	300/case
Cabin Can	$1.15	$1.35	100/case

Prices are F.O.B. Swanton, VT

New England Container Co.

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Swanton, VT 05488
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! Dealer Inquiries Welcome !

SIX YEARS WITH REVERSE OSMOSIS

By Frank Majszak, Maple City, Michigan

Since the energy crisis hit us all back in the '70's, there has been much interest in alternative methods for removing water from Maple sap. The sole use of the time proven evaporator had been great for all those generations, fueled by wood, coal, gas or fuel oil. Labor was cheap and I hear the old timers talk of fuel oil at 9 cents a gallon as recently as the mid '60's. How things change.

In 1979 #2 fuel oil went to $1.10 per gallon about syrup season and it was then we here at the Sugar Shack™ decided there must be a better way. We had heard of R.O. but had no idea who made them, what the cost was, or if it really worked. The Thomas Register at our local library listed several companies in the R.O. business and we were soon in contact with Lee Comb of Osmonic's, Inc., Hopkins, Minnesota. The only company at that time with any experience in Maple sap concentration. The result, the oil fired evaporator went, and the next year we had a SB92CHF, 600 GPH R.O. concentrating our sap to approximately 8% sugar. We then finish on a 6 x 16 wood fired evaporator. These two units handle our 16,000 plus tap operation entirely, (all tubing).

The real test of how successful these alternatives are, is in the actual cost of removing a gallon of water from Maple sap. In this respect I rate our R.O. machine as excellent and have listed below the six year cost of owning and operating our unit and then reducing this cost to show the actual average cost of removing one gallon of water from the sap.

Original cost including feed pump, wiring, and etc.	$19,800.
Minus current cost of 20 Sepralaters	10,080.
Machine cost without Sepralaters	$ 9,720.

Six year depreciation on machine cost, (15 year, life) 40%	= $ 3,888.
Six year depreciation on Sepralater, (8 year, life) 75%	= 7,560.
Prefilters used to date, 13 case @ $61.20 =	795.
Cleaning solution, average 120 per year. =	720.
Storage solution, one gallon per year @ $18.50 =	111.
Repairs to date, pressure gage, fittings =	87.
Total costs to date.	$13,161.

Gallons of sap processed to date	898,450 gals.
Average 70% water removed	x.70
Gallons of water removed to date	628,915 gals.
Total cost divided by gallons water removed =	$.0209
Electricity cost @ .07 per KW x 6 KW per hour .42 + 450 gallons removed =	.0009
Total cost for each gallon of water removed =	$.0218

This then is the bottom line. $.022 or 2.2 cents cost per gallon of water removed. I estimate that the costs of removing the last 25 to 30% of the sap water to finished maple syrup is at least .10 cents per gallon for fuelwood and labor cost only, plus then there is wear and tear on the evaporator which would cost about $12,000. to replace. Another point: without the R.O. I would need two more 6 x 16 evaporators.

It has not been all peaches and cream. There have been some problems keeping the membranes clean and functioning well. Experience has shown me how to anticipate these problems and to take corrective action before the problem gets serious. Bacteria is the major problem and our tubing system helps us control that. It runs relatively quiet, making far less noise then a vapor compression unit. Our machine has run steady, except for momentary shut down to change prefilters, for as much as nine days straight, 24 hours a day. Many times we have retired after a long boiling session and "Ozzie" is humming along chucking out about 450 gallons of water per hour for us while we sleep.

To sum all this up, I think Reverse Osmosis is the best thing that ever happened to Maple Syrup production. Maple is my business and without R.O. my fuel and labor costs for concentrating maple sap to syrup would quadtriple. Financially, that would be a disaster.

NEW HAMPSHIRE REPORT

By Fred E. Winch

The Summer Meeting and tour of the NH Maple Producers Association, Inc. was held in the Easton-Franconia area on July 20. It was hosted by the Charlie Stewart family.

At the business meeting it was decided to purchase a visitors guide to NH sugar houses to be used for promotional activities. Changes at our booth at Eastern States Exposition were also discussed. A tour of area sugar houses followed. The 14, 500 tap Stewart operation was visited first. Of particular interest was a cement sap holding tank big enough to accommodate the Olympic Swimming Team. The 1,000 gallon mark was located 6 inches off the floor! A maple museum in the sales room caught the attention of most tour goers.

The group traveled by bus to the Ross sap house located high on a hill overlooking Franconia Village and the Presidential Range of the White Mountains. The Coffin operation is located on the sight of the first Ski School in America and is near the former home of Bette Davis. The 800 tap operation utilizes tubing running directly to holding tanks.

The new post and beam sugar house at the Sherburn Farm was next on our itinerary. A homemade forced draft system had been installed in a new Cantin Evaporator. Mr. Sherburn described an innovative technique in installing his smoke stack which was unusually tall because of drafting problems caused by the mountains. A saw mill and shingle mill were also of interest to many. This was a 950 tap operation with room for expansion.

Our final stop was at Doug Amesbury's new sap house. Doug has about 200 roadside taps which he processes in a 2 x 4 evaporator. The design and construction of the sap house reflects the fact that Doug is a professional woodworker by trade. He was also building an octagonal barn which was of interest to many. Like the Sherburn's, Doug had a medicine cabinet which was necessary to house medicinal liquids which presumably help him to brave the cold north winds of March.

Buses returned to the Stewart sugar house for cold drinks, conversation and departure.

EASTERN STATES EXPOSITION

The Maple Promotional Booth at Eastern States Exposition will move to a new location and take on a new look

this year. The Expo runs from September 11 thru 22. Darrell Fish, chairman requests if any producer has any odd, different, or unique syrup containers, that you contact him in Wilton for future use.

MAPLE MOVIE

The NH Maple Movie has been reproduced on video cassettes. Our Association will be purchasing some. They are also available at $30 to individuals for home or sugar house use. If interested please contact Roy Hutchinson in Canterbury (783-9898).

A VISITORS GUIDE TO NH SUGAR HOUSES

For those who were unable to attend, at our Summer Meeting we voted to produce a Visitors Guide to NH Sugar Houses. We are in hopes that the NH Department of Tourism will help us to do this with a "matching fund grant". We need to collect information for this publication as soon as possible in order to have it printed by next season. We tried to collect this information last spring but did not get information from those who obtained membership at your container dealers. Even if you sent this information in already, please do so again.

Generally the past season was "pretty good" but as usual some were up, some down, some with plenty light amber, some with plenty dark (of good flavor). Insect problems have been light, no real out breaks. Low rainfall and cool weather has helped tourism.

DEADLINE FOR DEC. ISSUE NOV. 1st.

ONTARIO REPORT

By Bill Robinson; Auburn, Ontario

The Ontario Summer Maple tour was held in Eastern Ontario on July 17th at Kemptville College. An evening program on energy saving equipment for the maple industry was presented.

The program was opened by Clarence Coons, tour coordinator, Ross Boothby, and president of OMSPA, John Curtis, Principal of Kemptville College and Bill Hardy, District Manager of Brockville Ministry of Natural Resources, welcoming us to the area. 241 people registered.

There was a panel discussion on Reverse Osmossis with a representative from the three manufacturers and four Ontario producers taking part. The second panel discussion was on other energy saving equipment in the industry. They included preheaters, the econimizer and wood savers. A Maple cooking demonstration took place in another building. Microwave and conventional recipes were tested. There was a number of dealer displays set up with all the equipment that most producers would ever need or use.

On Thursday, July 18th we had breakfast at the College and then we left on tour buses for the first stop. John and Marlene Hunter are the fourth generation to operate the family farm. Their Maple operation presently has 1800 taps, 1600 taps are on tubing. They have a 5 x 12 Lightning evaporator and a 2 x 3 gas finishing pan. The Hunters have a pancake house which can seat up to 60 people at one time and has fed up to 500 people per day on busy weekends.

The second stop was at George and Marilynne Drummond who are the fifth generation to produce maple syrup and is the oldest continuous maple operation in Ontario. They currently have 1500 taps on vacuum and they use a 4 x 10 oil fired evaporator with a 2½ x 7 oil fired finishing pan and a Memtek R.O. The Drummond woodlot consists of 35 acres, mostly of old growth trees. Only dead or dying trees were cut out of this woodlot and the first thinnings took place in 1933 when a small section was thinned. George has started a thinning program to remove many of the old growth non-maple species.

Our next stop was at Earl and Ruth Connells, where we had our lunch on the beautiful shaded grounds of the Connell homestead. The Connells presently have 450 taps, and use a wood fired 3 x 12 evaporator. 300 taps are on Vacuum tubing and the rest are on vented tubing around the yard. Next season the tubing around the yard will also be on vacuum.

The first stop after dinner was at the farm of Ken and Sheila Bush, the fourth generation on this farm. The present maple operation consists of 2500 taps, 2,000 on vacuum tubing and 500 buckets set out on roadside trees. The sugar camp is built by the road and the sap is pumped from the pumphouse up to the sugar camp through 1,000 feet of 1" pipe. They have a Memtek R.O. machine with a Waterloo 4 x 12 oil fired evaporator and a 2 x 4 finishing pan.

We stopped at Albert and Rosemary Sanders for our last stop. They have a unique operation involving Black Maple trees. They have 2,000 taps on vacuum tubing and use a 3 x 11 Lightning

evaporator and an electric finishing pan 21 x 22. In the three years they have been making syrup they have averaged from a litre per tap to a high of more than 1½ litres per tap in 1985. Clarence Coons is a firm believer that Black maple is a superior sap producing tree and this could account for some of Albert's high production. He also has the earliest start-up date in this area.

We then returned to Kemptville College where we had a delicious Banquet and our guest speaker was Mr. Lou Stoats, New York State Maple Specialist who gave us an insight into Maple Research in New York State.

Tuesday morning we departed by bus for a tour of the college. We had a look at a sugar maple plantation that was planted in 1975. There were 400 trees planted and when they reach 10" in diameter they are hoping to have about 100 taps per acre.

Kemptville also has a Jack pine plantation planted in 1925 and this plantation was thinned in 1966. The Jack Pine did not respond but the hardwood species started to flourish in the thinned plantation. The remaining Jack Pine have been cut out last winter and some hardwood species growing are now 7-8" in diameter. The idea of this experiment is that it would be feasible to establish a hardwood forest using Jack Pine as a nurse crop.

We visited the Kemptville college sugar bush next with a potential of 950 taps. Part of the bush is tapped with vacuum and tubing and was originally set up as an educational facility but in 1975 it was changed to a research facility under Bill Langdenburg who is a horticulture lecturer at the college. Bill has done many different research projects and is currently working on reducing energy consumption during the evaporation process.

A Belated

We often visit places
Viewing walls hung with plaques
Inscribed with words of honor
And all supporting facts

Describing a famous person
And of course the work they're in
Listing deeds of merit
And talents sure to win

But we know of other folks
Perhaps far more deserving
For their generous contributions
In the field that they are serving

Folks that notice others
Granting them attention
Yet their own achievements
They always fail to mention

Like supporting worthy causes
And setting up foundations
Funding new ideas
And providing inspirations

Recognition

Perhaps its time we noticed
Give some credit to folks like these
Show our appreciation
And look beyond our trees

There is one special couple
That has room upon their wall
For a long neglected plaque
And coming from us all

These two special people
A pair we all know
None other than the LAMBS
Of course it's Bob and Flo

They've spent much time in Maple
And their dedication shown
They've helped us all with problems
When they had problems of their own

We can say our words of thanks
But that's not quite the same
Perhaps not so quick forgotten
If mounted in a frame.

OUR THANKS

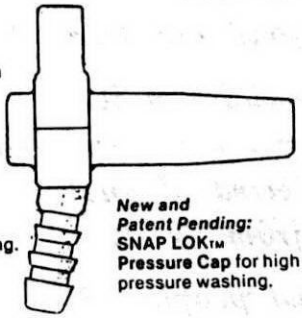
THE MAPLE SYRUP INDUSTRY

by — Adin Reynolds

SAP PLASTIC POWER U.S.A. CANADA TRAP!

New and Patent Pending:
SNAP LOK™ Pressure Cap for high pressure washing.

SPOUTS
- ☐ Black color aids in rapid tap-hole thawing.
- ☐ For removal use wrench or hammer.



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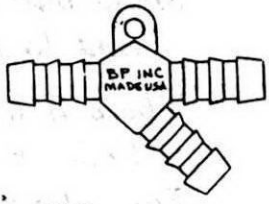
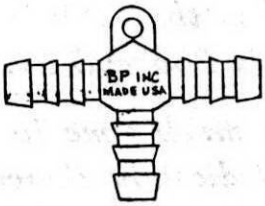
SNAP LOK™ Pressure Cap for high pressure washing.



"Y's"
- ☐ Tapered with smaller first rib for easier tubing insertion.
- ☐ Maximum sap flow path.

SPOUT-PLUG
- ☐ Interconnection between "T" and spout.
- ☐ Tight seal with spout allows pressure or vacuum washing of tubing in place.
- ☐ Compatible with competition's fittings.



CONNECTOR
- ☐ Will not pull apart.
- ☐ Nail hole.

NEW — Plastic Power Fittings; All redesigned for easy installation and maximum holding power.

All Parts Available FALL 1985 at NAMSC Meeting in Pennsylvania.

TUBING
ORIGINAL FORMULA — Green transluscent color; I.D. is standard for complete interchangeability. Minimizes ultraviolet sunlight deterioration.
NEW — "Fluted" N-S (no sag) design for year round installation. Stiff, heavy wall resists kinking and offers the ultimate in sag-free vacuum resistance.

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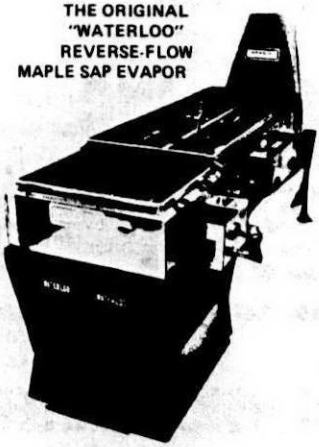

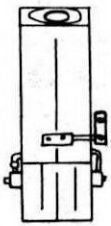

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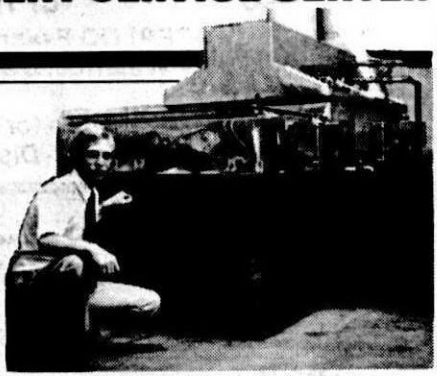

David Buttolph, maple producer and operational manager of the Swanton Maple Syrup Equipment Service Center, in front of the 4'x12' 19-50 LIGHTNING EVAPORATOR.

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PIPELINE PRESSURE TESTING TO DETECT VACUUM LEAKS

By: Dale E. Minick, President
Sugar Camp, Inc.

Anyone widely traveling about the maple producing regions and talking to producers using plastic tube networks and vacuum pumps for sap collection is soon struck by the wide variations in user satisfaction and success experienced with this technique. We've heard claims of sap yield increases rangeing from 0 to 700 percent.

After awhile, the curious starts asking why this vast difference and the foolish starts seriously looking for answers. This article is a summarization of the "whys" we found over the past 8 or 10 years in hundreds of sugar bushes, doing private research, and from the review of published data. The findings and the solution will amaze you.

THE PRINCIPLE PROBLEM

The major reason for poor pipeline performance is a lack of understanding on the part of the installer of the following previously unreported fact:

AIR, FLOWS UP TO NINETY(90) TIMES MORE FREELY THROUGH PIPES AND ORIFICES THAN SAP DOES.

Please go back and read this statement at least one more time. This fact is extremely important to you as ignoring it prevents you from consistently increasing sap yield and causes you to waste a lot of your time, money and effort. Your pipeline is affected in two ways. For example:

1. Under a vacuum of 20" hg, a hole as little as .050" in diameter will leak a volume of air into your pipeline equal to the total volume of sap flow from 1,000 taps near peak flow times. A series of smaller holes has the same effect.

2. Once inside your pipeline that air will flow 90 times more freely than the sap and will therefore be pumped from your network first **at the expense of improved sap flow.** Those bubbles you see in your lines are passing through the sap, not pushing the sap ahead as much as they appear to be, because of the vast flow friction difference of air and sap.

In a worst case scenario, depending on the location of the leak or leaks, your pump could pump air almost exclusively all season long with sap flows being no more than they would have been under gravity flow, while still maintaining a vacuum gauge reading at the pump that really impresses your producer neighbors who are not as skillful as you are.

Considering this important new information and the current price of "Vacuum" in gallon cans, it should be obvious that the tiniest of leaks are more important than once thought and that you cannot afford to "Put in a bigger pump so you don't have to worry about a few leaks, nor bother looking for them." You're kidding yourself if you believe that. More sap is the true test of your system, not high gauge readings. Your pipeline must be as tight as possible to increase sap yields significantly and avoid pumping air across the bush all season long. Waiting for the right breeze would make more sense and be a whole lot cheaper.

FINDING LEAKS--A SIMPLE SOLUTION

The obvious patiently waits to be stumbled upon by the weary. We stumbled on this technique while doing a tube washing experiment. We found that it doesn't pay to suck on your pipeline while trying to find vacuum leaks, it's better to pressureize it! Fill your network with sap, or better yet water before the season starts, and maintain the liquid at a steady 20 PSI with a pump. Then go for a walk throughout the bush looking for the easily seen "fountains" that stream from every leak point. It's much easier to see these fountains than it is to hear the nearly inaudible hisses that develop under vacuum, especially on windy days. You'll be absolutely amazed at how leak tight you thought your system was before you left. Nearly all leaks can be found this way, large and small, with perhaps hollow trees being an exception. We've found a couple of dozen sources of leaks during our travels but thats the basis for another article.

Sapsucker owners can use this method by placing a pressure relief valve set at 20 PSI in the vacuum mainline on a tee and attaching it to the pumps outlet tube end. Pumping sap, or water, into the network from the storage tank with a short pickup hose attached to the suction inlet tube end and routing the pressure relief valve overflow back to the storage tank completes the installation. At most a ten minute job. Turn on the pump and go for your walk. Take a friend or two along, it will speed things up.

Closed system gravity users and producers using other types of vacuum systems can use this method by attaching a relief valve set at 20 PSI to most any type of water pump and installing it as described above.

SUMMARY

This very simple straightforward method of pipeline leak detection can save producers countless hours and many start up frustrations that usually occur at a time when they can be least afforded. Most important of all though, better sap yields can be realized and thats what we all set out to achieve in the first place. How much more sap you get is the true test of any pipeline system, and unfortunately there's no gauge available for that.

BACTERIAL ADHESION TO PLASTIC TUBING WALLS

By Warren G. King and Mariafranca Morselli[1]

Introduction

Several studies have indicated microorganisms as one cause of prenature stoppage of sap flow in tapped sugar maples (*Acer saccharum* Marsh.) (1,2,3). It is also well documented that heavily contaminated maple sap produces syrup of dark amber color grade (4,5). Microorganisms alter the sap biochemistry at the tap hole and in the sap collecting and storing systems. The process is accelerated as temperature warms, favoring microbial growth in sap(5).

The advent of plastic tubing systems to collect sap has eliminated several problems associated with the traditional bucket system. Insects, leaves and debris are prevented from entering the sap. Tubing systems increase sap flow either due to natural vacuum formation on a slope, or with vacuum pump, and reduce the labor needed to gather the sap. Both of these considerations benefit the maple producer. However, plastic tubing systems also present some problems of their own. Sap quality problems arise if the lines sag and the sap lingers within the tubings or the large conduits. In addition, the warming effect of the sun increases the temperature within the tubing (6) to optimum levels for microbial growth and sap flow may decrease because of "organic buildup" on the internal tubing walls (7). This buildup is a result of the adhesion of microorganisms to the tubing walls (8). They can clog the tubing connection at the spout and junctions as well as other critical areas.

[1]Technician and Research Professor, respectively, Botany Department, Maple Research Laboratory, Agricultural Experiment Station, University of Vermont.

Several species of microorganisms have been shown to be able to adhere specifically to a surface when optimal nutritional and environmental conditions are met. One example is the adhesion of *Streptococcus sanguis* and *Streptococcus mutans* to dental surfaces to form a film known as plaque (9). Fouling of submerged wastewater treatment equipment by *Pseudomonas* species and other marine bacteria has also been documented (9). Adherent bacterial biofilms, composed of *Pseudomonas* species, have also been found in human bone disease (10).

Early research documented microorganisms associated with maple tree tapholes (2). *Pseudomonas*, *Achromobacter*, and *Flavobacterium* genera were identified. *Pseudomonas geniculata* (presently known as *Pseudomonas fluorescens* biotype G) was the identified bacteria they most often encountered. Unpublished research performed at the University of Vermont Maple Research Laboratory on the microbial ecology of the sugar maple has confirmed that these groups are the ones we most often have identified on the tree bark, wood, and in contaminated sap.

In 1983, with partial funding from the Vermont Chittenden County Maple Sugar Makers Association, we initiated a project to study the microorganisms associated with maple sap collecting tubing systems. The results of that study (8) indicated that bleach cleaned-and-stored tubing systems were devoid of viable microorganisms when examined after 9 months of open-to-air storage. Any contamination of tubing systems during sap flow would therefore originate from tapping techniques and handling of tubing during installation. Species of the genus *Pseudomonas* were found to be involved in adherence to

the inner walls of the plastic tubing when examined after sap flow (8).

In 1984, again with partial funding from the Vermont Chittenden County Maple Sugar Makers Association, we conducted this followup study to identify the species within the *Pseudomonas* family that were actually involved in the adhesion. Except for our 1983 study, no previous research has documented the numbers and types of microorganisms specifically adhering to plastic tubing walls.

Methodology:

Three tapholes were opened in a large maple tree (27 inch in diameter at breast height) with a 7/16 inch drill bit at breast height to a depth of 5 cm. The sterile tap was bored with sterilized equipment using an aseptic tapping technique (5).

Three different tap and tubing designs were used to study the numbers and species of microorganisms adhering to the internal walls of sap collecting tubing. The three systems consisted of 1) nonsterile tap with nonsterile (nonautoclaved) tubing, 2) nonsterile tap with sterile (autoclaved) tubing and 3) sterile (aseptically bored) tap with sterile (autoclaved) tubing. The dropline for each tap was branched at a point 60cm from the spout into three separate 30 cm tubing lines. The three lines converged into a single tubing that was connected to a sterilized collection flask. The flask had an overflow to prevent contamination. All three systems were assembled using Lamb's Naturalflow® [2] tubing. This tubing had been washed with a 10% bleach solution immediately following the previous sap season, and was stored during the summer and fall in a large, dark, screened and aerated shed.

[2]Lamb Tubing System. Robert M. Lamb, Bernhards Bay, NY. Use of name of manufacturer does not imply endorsement by the Vermont Agricultural Experiment Station over others not named.

For each system, each of the three separate lines was used for only one of three collection times: early season (3/21), mid season (3/31), or late season (4/6). One of the 30 cm sections of tubing was removed, using sterile scissors, from each system at each collection time. The sections were cut on both sides to a length of 25 cm and clamped shut on both ends. At each collectiontime a sample of the sap collected from the tubing systems into a sterile flask was aseptically transferred to a sterile bottle, and transported on ice along with the tubing samples to the Maple Laboratory.

Upon arrival at the Lab the tubing samples were immediately opened at one end, filled with 10 ml of phosphate buffered saline (PBS) with a sterile pipette, and reclamped. The sealed tubings were then agitated for 30 seconds to loosen any lightly attached microorganisms that might have been present.

Flushing Technique:

The PBS solution was then removed from the tubings and serial dilution platings were performed on each sample for growth determination and count of bacteria and yeast (11).

Swabbing Technique:

The flushed tubing sections were then cut to a length of 10 cm. The inner surface of the tubings was sampled by scraping it with a sterile cotton swab. The cotton end of the swab was then placed in 10 ml of PBS solution and shaken vigorously. This technique was designed to remove any microorganisms strongly adhering to the tubing walls. Dilution platings were performed on this solution as above.

Sap Control:

Dilution platings were performed on the collected sap samples in the same manner as was done with the flushing

and swabbing of tubing samples.

Tubing Control:

A 10 cm section of new, unused tubing served as the tubing control. The section was flushed and swabbed to determine if any microbial contamination was present.

Identification of bacterial isolates to the specie level was attempted using appropriate morphological and biochemical identification techniques (12).

The ability of an organism to adhere was assessed by comparing the microorganism count (CFU/ml), as well as the number of isolates found in the sap control, to the microorganism count and number of isolates found in the flushing and swabbing of tubing samples.

Results and Discussion:

The section of new tubing that served as a control yielded neither bacteria nor yeast from both the flushing and swabbing techniques. This indicates that new tubing, as we previously found for used, bleach-cleaned, and stored tubing (8), should not contaminate sap too early in the season with viable microorganisms.

Of the 115 microbial isolates from all tubing systems and sap controls, 59.2% were fluorescent pseudomonads, 29.6% were yeasts, 4.3% were non-fluorescent pseudomonads, and 6.9% were other bacteria.

Of the total isolates, 62.6% were recovered from sap control. Indentification of these isolates indicated that 40.4% were *Pseudomonas fluorescens* (biotypes A and G), 45.8% were yeast, and 14% were other bacteria (Fig. 1).

Of the total isolates, 9.6% were recovered from flushing the tubings. Of these isolates 81.8% were *Pseudomonas fluorescens* (biotypes A and G) and 18.2% were other bacteria (Fig. 1).

Of the total isolates 27.8% were recovered from swabbing the tubing walls. Of these isolates 90.6% were *Pseudomonas fluorescens* (biotypes A and G), 3.2% were yeast and 6.2% were other bacteria (Fig. 1). The number of recovered bacteria (*Pseudomonas fluorescens*) should have decreased proportionally from sap control to flushing to swabbing if adherence to the tubing walls had not occurred.

Conclusions:

It is difficult to derive statistically significant conclusions with a small sample size. However, results from this study showed significant adhesion of *Pseudomonas fluorescens* biotypes A and G to the walls of all three tubing systems during sap flow only after mid-season. No adherence of living yeast was found. This indicates that the internal tubing walls provide an environment for attachment and growth that is best suited for *Pseudomonas fluorescens*. After being deposited on the tubing walls these bacteria reproduce rapidly. Such a buildup of microorganisms eventually leads to a slowing or clogging of sap flow, and further contamination of sap. This study substantiates our previous work (8) that adhesion is not detectable on tubing walls until microbial load in the sap approaches a high level.

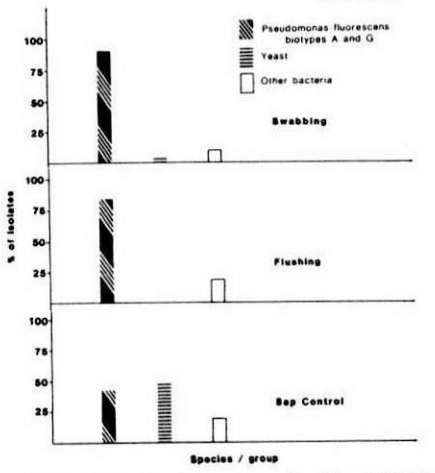

Fig. 1. % of isolates in species/group category from swabbing, flushing, and sap control for the three tap and tubing systems

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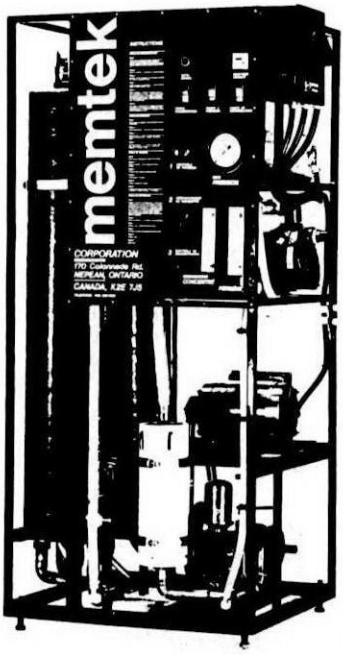

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Vermont Maple Essay Contest
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MAPLE SUGARING: Nature's Sweet Gift

by Andrew West

Maple sugaring is an important business, hobby and tourist attraction in Vermont, but it is also a tradition which means a lot to me and other Vermonters. This custom has been carried down through the generations of several families in Vermont. It is an old tradition which has easily maintained its ranking among industries in Vermont.

The first sugarmakers were Indians, who primitively made syrup and sugar. They shared the idea with the colonists, who passed it down through the generations. My great-grandfather was a sugarmaker and he passed the tradition on to my grandfather, who has taught my father and me how to sugar.

Maple sugaring was taught to us by the Indians living in New England. An Iroquois legend tells about how maple sugar was discovered. It says that an Indian chief named Wokis woke up one morning to go hunting. He took his tomahawk from the maple tree where he had left it the night before and went off for the day. As the day progressed, the weather warmed and the gash in the tree where the tomahawk was, opened up. The sap oozed out into a container that happened to be under the tree. As dinner time came around, Wokis' wife needed water to cook with. Not wanting to be wasteful, she used the sap from the tree. Wokis came back from hunting and ate the food with the boiled sap in it. He liked it, and probably shared the idea with the tribe.

The Indians gashed trees to get the sap. One tribe, the Housatonic, were the Indians known to have tapped trees. They used bark, reeds, and crescent-shaped shingles as spouts. The colonists and early sugarmakers also used spouts made of wood or sometimes metal, and learned to hang the buckets on them. Today we use pipelines. The sap is pumped to the sugar house by a vacuum system or may flow by gravity. This saves the time and cost of collecting the sap from buckets. Of course, some sugarmakers still use buckets and keep up the old tradition.

Once the Indians gathered the sap, they boiled it in hollowed out logs, or clay pots, which they hung over the fire. They boiled the sap down to sugar, as did the colonists. The colonists and early sugarmakers boiled in iron or copper kettles in a central spot in their sugar bush.

Today, we have sugar houses with modern boiling equipment inside them. The sap may be pumped from holding tanks through a reverse-osmosis machine, which is a machine that removes the water from the sap, increasing the percentage of sugar content. Sap usually is between two percent and four percent sugar content. Sap can also be pumped around ultraviolet lights to reduce bacteria and micro-organisms. The sap is boiled in a pan called an evaporator which is placed over a fire box, called the arch. The sap works its way around divisions in the pan until it is the proper color and density, which is determined by an instrument called a hydrometer. The sap must be filtered for any impurities. This can be done when it is poured over felt filters or pumped through a filter press, which is a series of paper filters.

When the Indians marketed their syrup, they boiled it down to sugar, put it in boxes and traded it. They usually made only enough for personal use. The early sugarmakers made enough for themselves plus a little extra to sell or trade. Today, sugarmakers must grade the syrup before they sell it. The grades are determined by the United States De-

partment of Agriculture grading system. There is the lightest colored and mildest tasting Fancy or Grade A Light Amber, the slightly darker and strong tasting Grade A Medium Amber, the darker and stronger Grade A Dark Amber and Grade C cooking syrup. After a grade has been determined the producer's name and the Vermont Seal of Quality may be added. It pays to make quality syrup as this will result in satisfied customers. Sugarmakers may sell their syrup to their neighbors, stores and restaurants. Large scale operators may find a steady market outside the state and outside the country.

The production of maple syrup has declined since the 1800's. After the 1800's, cane sugar was being produced cheaper and more effectively than maple sugar. Therefore, the production of maple sugar began to decline. Vermont still produces a lot, however, in 1982, Vermont sugarmakers made 500,000 gallons or about $8,250,000 dollars worth. In 1983, Vermont producers made 495,000 gallons, but increased the profit to $8,415,000 dollors worth. Vermont produces about 80 percent of the syrup in New England and about 36 percent more syrup then New York.

While in the times of early sugarmakers, sugaring was a hobby or process just to make extra sugar as a seasoning and flavoring for food. Today, there are full-scaled sugaring operations that employ people all year. Also, there are farmers that sugar in the early spring to provide supplemental income when farming operations are slack. The 2000 sugarmakers in Vermont hire an additional one thousand employees. Four major syrup packaging towns in Vermont are Essex Junction, St. Johnsbury, Newport and Jacksonville. The Leader Evaporator Company in St. Albans makes sugaring equipment. Supplies are getting easier to find as more hardware stores and sugaring supplies are receiving more items.

Of course a sugarmaker does have his problems. He has the problem of getting enough wood or the increasing cost of other fuels. Many sugarmakers use the trees they have thinned. Diseases, such as cankers, and sunscald may eat away at the trees along with squirrels, porcupines, chipmunks and

mice. Squirrels have been a major problem lately because they chew holes in plastic tubing. Sugarmakers must also have the weather on their side. Artificial syrups pose a threat to maple syrup because they are cheaper and easier to buy. Overall, I think that having maple syrup on the table is worth all of the barriers you must face to get it there.

I really think that maple sugaring is very important to Vermont. It is a major industry in Vermont that has been passed on from generation to generation. All over the state there are sugar houses which are evidence of the industry's importance on the economy, tourism, and tradition in Vermont. I can hardly wait until I am old enough to take a more active part in sugaring with my grandfather. When I am older, I hope I can carry on the tradition. Maple sugaring is just too important to this state for anyone to neglect or forget.

BIBLIOGRAPHY

Collier's Pictured Encyclopedia, 1966, s.v. "Sugar," by: Parker Sandheimer

Coon, C.F. *Sugar Bush Management for Maple Syrup Producers.*

Extension Service University of Vermont. *Vermont Native Products: Maple syrup*, 1983.

Vermont Department of Agriculture. *Vermont Maple Quality Control Manual.*, Montpelier Vermont.

Vermont Maple Promotion Board. *Maple Sugaring. A Guide for Elementary Teachers* Vermont Maple Promotion Board, 1983.

World Book Encyclopedia, 1983 m.v. "Maple Syrup." by: James W. Marvin.

Interviews with: Malcolm W. Joslyn
Robert L. West
Donna J. West

ARCHIE'S SUGARBUSH

Dear Mr. Editor:

My wife, she sez, "Honest Archie, sometimes she calls me Truthful Archie, why don't you tell that nice editor man about the corn field?" Well, it waz like this -

It wuz the summer after the bumper syrup crop year. We decided to plow up the east forty and plant sweet corn. We'd made so much syrup that year and so much steam had come off our 16 evaporators, the steam went up and mixed with the clouds carrying acid rain from the steel mills. This caused a chemical reaction called interoxynitro-generation. In ordinary language this means changing oxygen to nitrogen.

Well, ya see, the east forty, being on the lee side of the sugar bush, was right in the path of those rain storms and got the most of that nitrogen. We didn't realize this until the sweet corn came up. It grew so fast and so big we couldn't even reach the ears using a step ladder so picking waz impossible. We tried putting it in the silo but couldn't get the stalks through the chopper.

We did manage to get one ear down using a chain saw. We shelled off 96 bushels of corn and then took the cob to the saw mill. They sawed out 180 feet of boards but they were so full of knot holes from the kernals we couldn't sell 'em. The only salvation was to tap the corn and see what we could make of the sap.

We found out, right away, that we had to bore the holes clear through the stalk and hang a bucket on each side so they'd balance when they got full. Ya see, the stalks were only 5 to 6 inches in diameter but they ran so much sap we had to use 10 gallon buckets and one would have tipped them over when they got full.

We only had enough buckets to tap 10 of the 40 acres but that was a good thing. Our 16 evaporators wouldn't have handled any more. We only made one run though. Ya see, the folks that bought the corn syrup got drunk every time they had pancakes. They didn't complain, but the State Alcoholic Beverage Board did.

Your Truthful friend,
Archie

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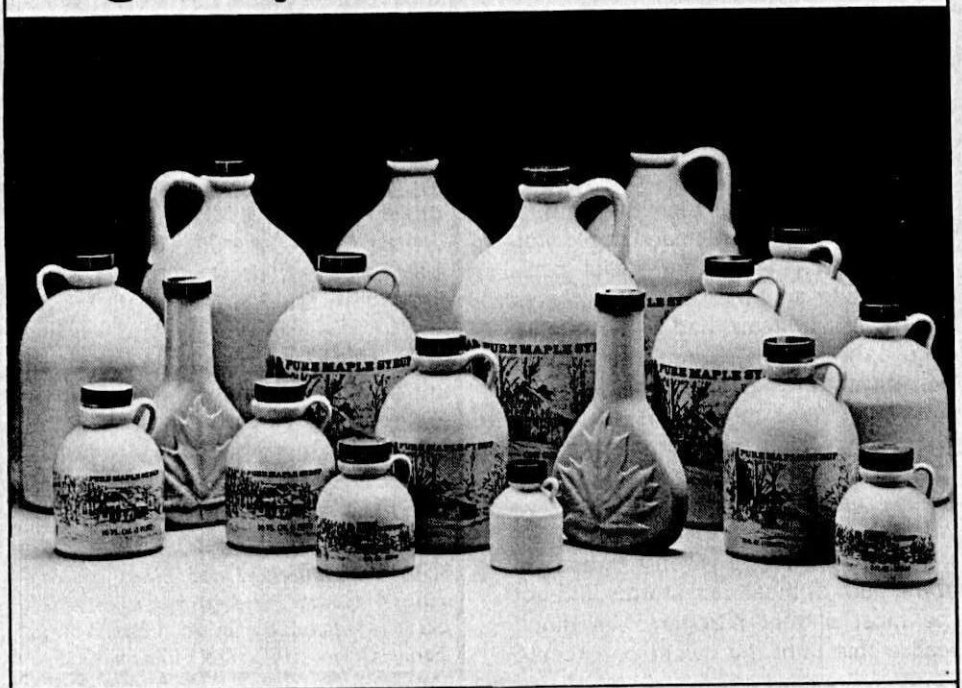

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603/669-2500

Where to Find Bacon Packaging:

Maine
Kinney & Hodgkins Maple Supplies, Thorndike, ME 04986 ..... (207)568-3683
Kinney & Hodgkins Maple Supplies, Yarmouth, ME 04096 ..... (207)846-4570
Maine Maple Products, Inc., Titcomb Hill, Farmington, ME 04938 ..... (207)778-3803

Massachusetts
Devon Lane Farm Supply Inc., Daniel Shays Hwy., Belchertown, MA 01077 ... (413)323-6607
James Ewen & Sons, 66 Elmwood Rd., Lunenburg, MA 01462 ..... (617)582-6655

Michigan
Sugar Bush Supplies, 2611 Okemos Rd., Mason, MI 48854 ..... (517)349-5185

New Hampshire
R.N. Johnson, Walpole, NH 03608 ..... (603)756-3321
N.H. Maple Producers Assn., Warehouse, Rt. 106, Loudon, NH 03301 ..... (603)783-9961
Richard Moore, RFD No. 8, Concord, NH 03301 ..... (603)267-8217

New York
Scott F. Bonno, Route 4, Box 146, Canton, NY 13617 ..... (315)386-8951
Lansing Burdick, 335 East Rd., Stephentown, NY 12168 ..... (518)733-5591
Campbell's Maple, Smyrna, NY 13464 ..... (607)627-6653
Charles R. Emerson, RD 1, Alfred Station, NY 14803 ..... (607)276-6481
David Nascimbeni, Glen Durham Sugarhouse, Cairo, NY 12413 ..... (518)622-9878
Northeastern NY Maple Producers Assn., c/o W. Barry Branon,
54 Cogan Ave., Plattsburgh, NY 12901 ..... (518) 563-1063
Larry Smith, Rt. 55, Box 177, Napanoch, NY 12458 ..... (914)647-5539
Harold Tyler, Maple Farms, Tyler Rd., Westford, NY 13488 ..... (607)638-9474
Neil C. Wright, 28 Liberty St., Camden, NY 13316 ..... (315)245-1434 or (315)245-1519

Ohio
Wyman W. Manes & Son, East Orwell, OH 44034 ..... (216)583-2387
Richards Maple Products, 545 Water St., Chardon, OH 44024 ..... (216)286-4160
O.C. Stevens & Son, Maple Lane Farm, Mt. Gilead, OH 43338 ..... (419)946-3300
David Stump, 5652 Kennestrick Rd., Plymouth, OH 44865 ..... (419) 492-2731

Pennsylvania
Curtis Dom, Rt. 160, P.O. Box 56, Wellersburg, PA 15564 ..... (814) 324-4414
Dale Jeffrey, Box 15, Wagners Rd., W. Salisbury, PA 15565 ..... (814) 662-2904
Northeastern Pennsylvania Maple Producers Association
Court House, Honesdale, PA 18431 ..... (717)689-2353 or (717)253-5970
Potter-Tioga Maple Prod. Assn., Coudersport, PA 16915 ..... (814)274-8540
Robert McConnell, Coudersport, PA 16915 ..... (814)274-9143
H.W. Russell & Sons Maple Farms, Rome, PA 18837 ..... (717)247-7361

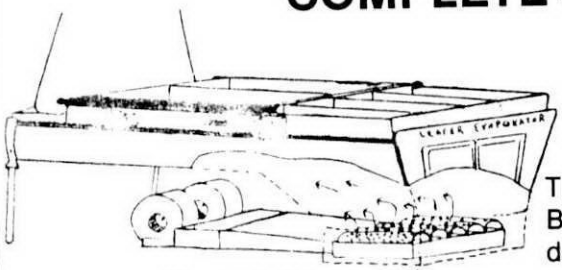
Vermont
Donald Amero, W. Woodstock VT 05091 ..... (802)457-3722
Clark Brothers, Wells, VT 05774 ..... (802)325-3203
The Dakin Farm, Ferrisburg, VT 05456 ..... (802)877-2936
Danforth's Sugar House, County Rd., Montpelier, VT 05602 ..... (802)229-9536
Gordon Goss, RFD, Barnet Center, VT 05821 ..... (802)633-2276
Leader Evaporator Co., St. Albans, VT 05478 ..... (802)524-4966
David R. Marvin, Johnson, VT 05656 ..... (802)635-7483
David Mayotte, E. Fairfield, VT 05448 ..... (802)849-6810
Small Brothers USA Inc., P.O. Box 714, Swanton, VT 05488 ..... (802) 868-3188
Vermont Sugar House, Exit 3, I-89, So. Royalton, VT 05068 ..... (802)763-8809

Virginia
Ivan Puffenbarger, Rt. 637, Blue Grass, VA 24413 ..... (703)474-2771

Wisconsin
Reynold's Sugar Bush, Inc., Aniwa, WI 54408 ..... (715)449-2057

Quebec
Small Brothers Inc., P.O. Box 160, Dunham, Quebec, Canada JOE 1MO ..... (514)295-2441

LEADER EVAPO
COMPLETE SUPPLIER TO THE



Forced Draft Unit

This unit will increase the BTU's by 10% to 20% and reduces the wood consumption by 30% to 50%. Can be installed in any wood fired arch.

LEADER KING VERMONT EVAPORATORS

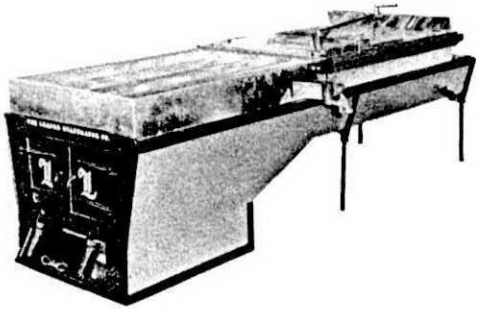
STORAGE - GATHERING TANKS

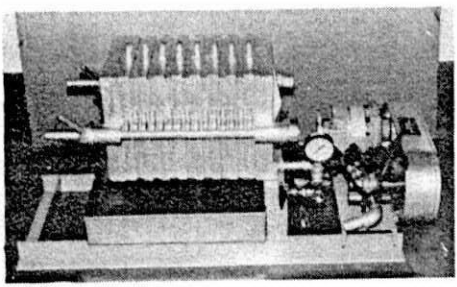
MADE WITH DOUBLE SEAM LOCKS FOR DURABILITY

RAITHBY ECONOMIZER

MEMTEK R.O. MACHINES

LAMB TUBING & FITTINGS





Leader Maple Syrup filter press.

10" plate & frame filter Press, filters upwards to 150 gallons before needing paper change. No cloths needed.

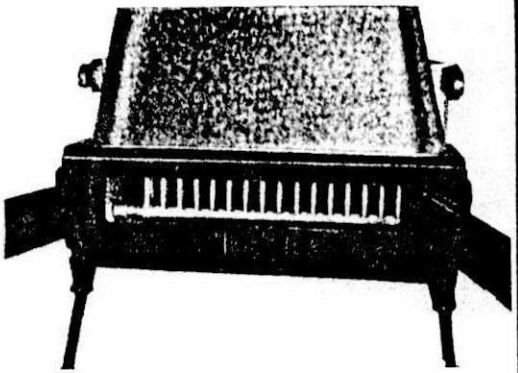
Leader Evaporator Co. Inc.

25 Stowell St.
St. Albans, Vermont 05478
TEL: (802) 524-4966 or 524-3931

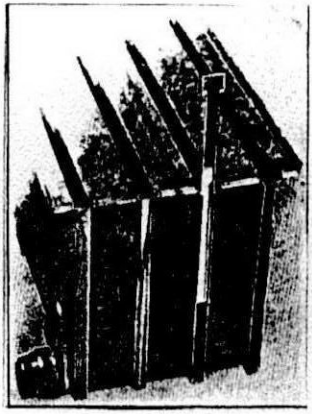
RATOR CO., INC.
MAPLE PRODUCER SINCE 1888

COMPARE QUALITY BEFORE YOU BUY

REAR VIEW OF LEADER ARCH



We have built the rear of the Leader arch of the same quality castings, featuring wide doors for the convenient cleaning of flues. It is very essential that flues be kept clear of soot and carbon if best results from fuel are to be obtained. A flue brush is included with each rig. Note the seamless drawn copper drain pipe 1 1/8″ square, firmly soldered to the bottom of the flues which, through a 3/8″ hole in each, are quickly drained, flushed and automatically cleaned.



LEADER FLUE CONSTRUCTION

Notice the double locked seam construction used in our flue ends resulting in four thicknesses of metal at this point. The ends are then saturated with hot solder. Each step is carefully brought out in the picture at the left. To give added protection the flue ends at the front of the flue pan which come in direct contact with the flames are also soldered on the inside. These sections are then fastened together by a special method of locking seams which ensures a tight rigid joint. This method eliminates any danger of moisture accumulating in the seam itself. The inside of a Leader seam has never been known to rust out. Notice heavy brass flange securely attached to end of drain pipe and side of flue. Here again you see that extra quality found throughout the LEADER.