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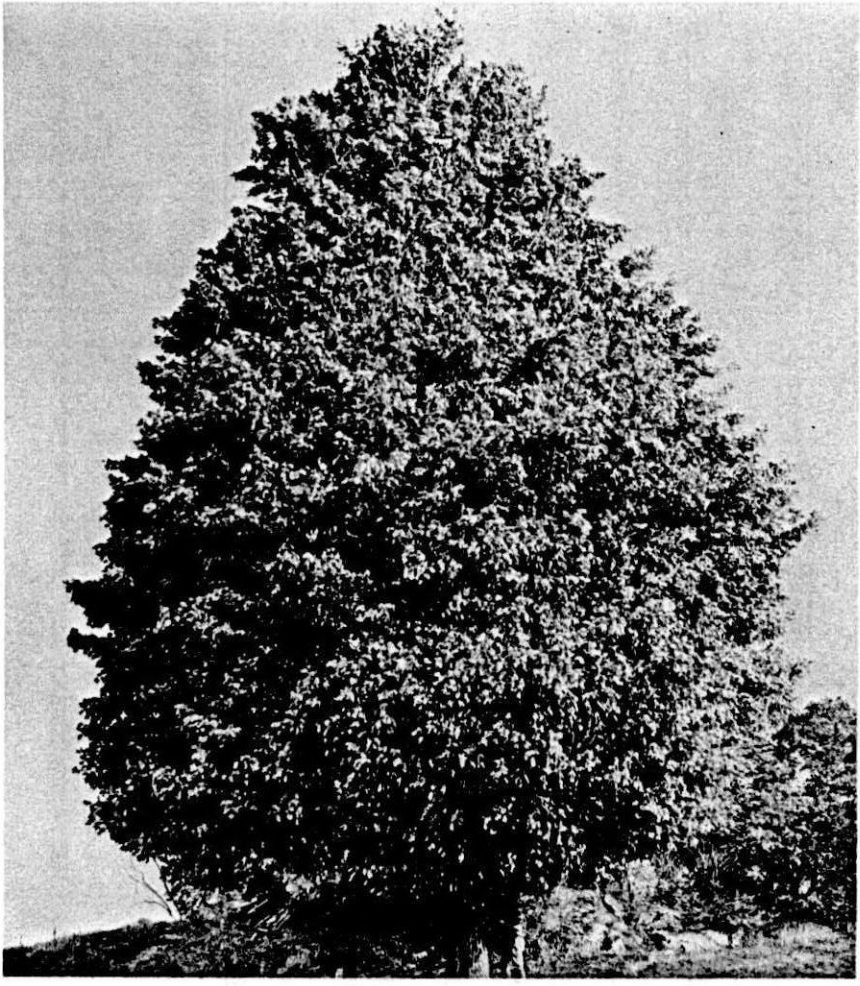

Vol. 10, No. 2 July, 1971

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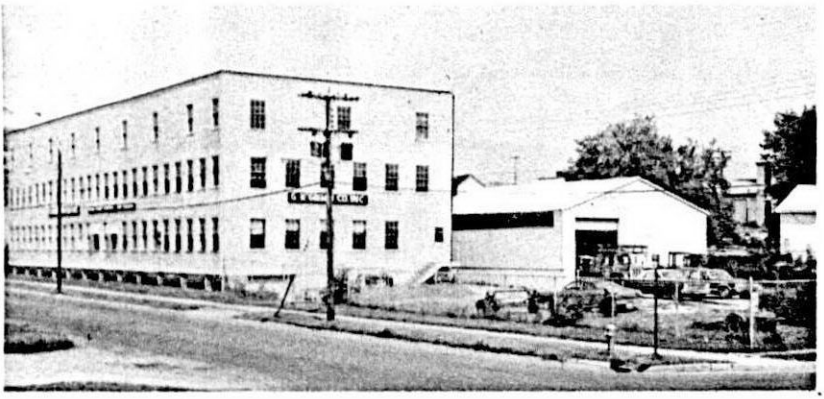

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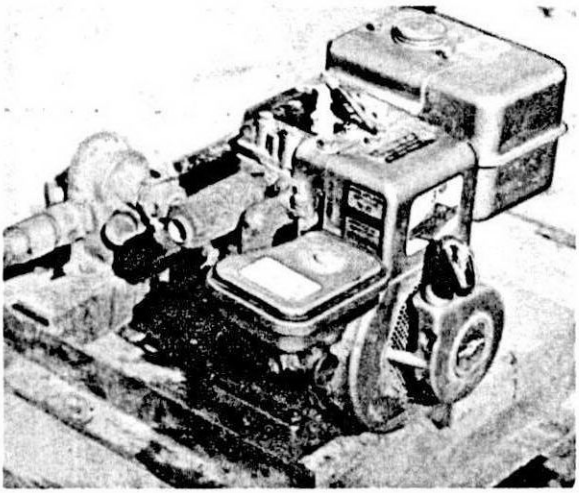

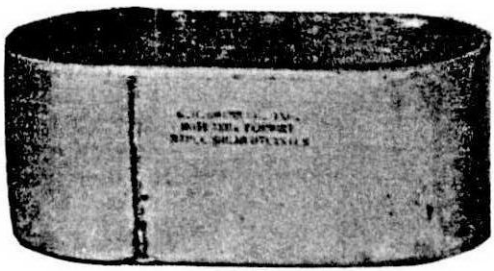

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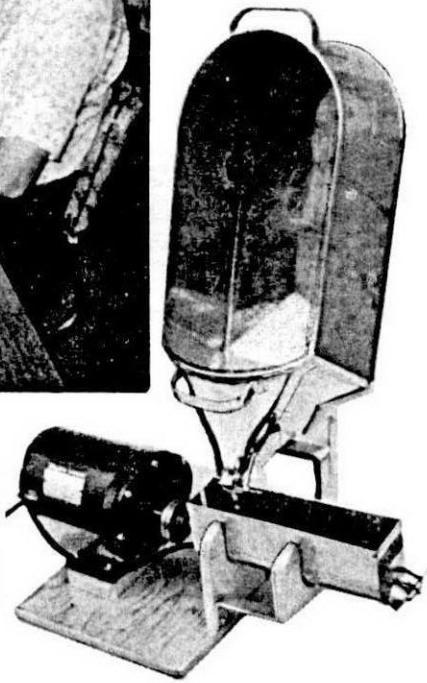

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HOW MANY TREES ?

by H. Clay Smith and Carter B. Gibbs
Northeastern Forest Experiment Station
Forest Service, U. S. Department of Agriculture
Burlington, Vermont

How many trees should you have in your sugarbush?

Because large-crowned trees are believed to give the most and the sweetest sap, it would be desirable to have each sugarbush acre fully covered with trees that have large full crowns like those of open-grown trees.

With this in mind, we made a study and calculated how many trees of each diameter size would be needed to best cover an acre. We also calculated spacing needed between trees to get this coverage.

THE STUDY

First we divided the commercial sugar maple region into five subregions because we felt that crown sizes might vary with differences in climate and soils. The five subregions included the following areas:

Subregion	Area
New England	Maine, New Hampshire, Vermont, northern New York, Massachusetts
Mid-Atlantic	Southern New York, northern Pennsylvania, Ohio
Southern	Southern Pennsylvania, Maryland, West Virginia
North-Central	Minnesota, Wisconsin, Iowa
Central	Michigan, Indiana, Illinois

We then made a survey of open-grown sugar maples of various sizes in each area. Crown diameters and tree diameters were measured on 301 trees, approximately 60 in each subregion. The diameters of the tree crowns were measured in north-south and east-west directions, and these two measurements were then averaged for each tree. Tree diameters were measured at breast height, 4-1/2 feet above the ground.

We calculated an average crown diameter for each tree diameter. Using these crown diameters, and assuming that the tree crowns were hexagonal, we figured the area at the base of the crown.

By dividing this crown area into the area of an acre, we got an estimate of the number of trees that would fully occupy an acre. We did this for trees of various sizes so we would have a guide for a variety of sugarbushes.

In actual practice, selected trees from a sugarbush will have more space between the crowns than the open-grown tree crowns that just touch. However, if these selected sugarbush trees respond to thinning and release, these tree crowns should become larger and characteristically open-grown.

Recommended Number of Trees

The number of trees with full crowns needed per acre is given in table 1 for each subregion. This table is used as follows: if you have a sugarbush with trees averaging 12 inches in diameter in the New England area, read down column 1 ("Average tree diameter") to 12; then read across to the column labeled "New England". You will find that you should have at least 71 trees per acre.

If you live in the Central subregion, you would need only 58 trees per acre because trees in the Central subregion have larger crowns, due probably to better growing conditions. For a sugarbush with trees averaging 20 inches in diameter, a minimum of 37 trees is recommended

for the New England subregion and 29 for the Central subregion.

In table 1 we have included number of trees per acre for tree diameters greater than 20 inches. We realize that most producers will not be thinning 20-inch plus diameter trees for the purpose of developing open-grown trees. However, this information is useful for indicating the minimum number of trees per acre that should be present for the larger tree diameters.

Recommended Tree Spacing

You can also figure the spacing between trees in the sugarbush. The guide works like this: Suppose you live in the New England subregion, and the trees in your sugarbush average 16 inches in diameter. From table 1 you find that you should have at least 50 trees per acre.

Now use table 2 to estimate the spacing between trees. Read down the column labeled "Number of trees per acre" till you find the number closest to 50 — in this case 49. Read across to the next column and you will find that 50 trees per acre is equivalent to approximately a 32-foot spacing. The distance between selected trees should be about 32 feet.

With any spacing guide, the question arises about what to do when the trees in the stand are not all the same size. For example, what should the spacing be between a 20-inch tree and a 12-inch tree in a sugar maple stand in New England? To find the spacing distance, first average the tree diameter (d.b.h.) of the two trees and then determine the tree spacing for the average d.b.h. The average d.b.h. in this case is 16 inches. A stand containing trees averaging 16 inches in d.b.h. should have 50 trees per acre (table 1). Thus there should be 32 feet between the two trees, because 50 trees per acre is equivalent to about a 32-foot spacing (table 2).

Other spacing values can be figured the same way. However, remember that these between-tree distances are for the ideal situation, and that you will seldom find desirable trees at the exact distances recommended.

How To Use This Guide

If you have a sugarbush area that needs thinning, determine the average diameter of the trees in the stand. Then use table 1 to find the recommended number of trees per acre.

Selected trees should be distributed as evenly as possible throughout the sugarbush, so use table 2 to find out how far apart the trees should be.

However, if your sugarbush has many more than the recommended number of trees, you should not suddenly remove all the trees above the minimum number. Leave a few extra trees to allow for any losses that may occur. Also, large openings in your stand can encourage undergrowth you may not want.

Remember, number of trees per acre is only one of the factors that you should consider when you thin your sugarbush. If possible, test your trees for sap sweetness, and keep those that have the highest sugar content. Also, be sure that the trees you keep are healthy, vigorous, and have a good potential for developing full crowns.

If you have trouble applying this guide, you can probably get assistance from a forester in your area.

Table 1. –
Minimum number of sugar maple trees needed per acre, by tree diameter at tapping height

Average tree diameter (inches)	Subregion		
	New England	Mid Atlantic	Southern
4	182	197	136
6	138	143	108
8	107	108	88
10	86	85	73
12	71	68	61
14	59	56	52
16	50	47	45
18	43	40	39
20	37	34	35
22	33	30	31
24	29	26	27
26	26	23	25
28	23	20	22
30	21	18	20

	North Central	Central
4	181	166
6	133	120
8	102	92
10	81	72
12	66	58
14	54	48
16	46	40
18	39	34
20	34	29
22	29	26
24	26	22
26	23	20
28	20	18
30	18	16

Table 2. –
Distance between trees, by number of trees per acre

Number of Trees per acre	Distance between trees	Number of Trees per acre	Distance between trees
	Feet		Feet
196	16	37	37
174	17	35	38
155	18	33	39
139	19	31	40
126	20	30	41
114	21	28	42
104	22	27	43
95	23	26	44
87	24	25	45
80	25	24	46
74	26	23	47
69	27	22	48
64	28	21	49
60	29	20	50
56	30	19	51
52	31	19	52
49	32	18	53
46	33	17	54
44	34	17	55
41	35	16	56
39	36	15	57

TOURS

ONTARIO MAPLE PICNIC

For the first time the Ontario Maple syrup Producers Assoc. will sponsor a Maple Syrup Picnic Meet on Saturday, July 24th at Nolet's Maple Products, Hardwood Lake, Ontario, Canada. Hardwood Lake is on Highway 500, 26 miles east of Bancroft or 82 miles north of Napanse via Highway 500 and Highway 41. Napanse is on Highway 401, east of Kingston.

This maple syrup operation is the most modern in Ontario, with the sap from 12,000 taps on tubing going directly to a sugar house, using a vacuum pump. The potential here is about 25,000 taps.

Exact details were not available at this writing, but may be obtained by writing or calling:

Walter A. Humphreys
Sec'y Ontario M.S.P.A.
Box 157
Barrie, Ont., Canada

NEW YORK MAPLE TOUR -----

New York State's Annual Summer Maple Tour will be held in Lewis County on August 11 and 12. Visitors will assemble at the Irving Kraeger Farm at Constableville at noon on Wednesday, August 11. Mr. Kraeger operates a large dairy farm milking 125 cows in an automated free stall milking parlor complex.

The Kraeger sugarbush averages two quarts of syrup from each of 2,200 taps. Other features of this stop will show a pole sugarhouse – storage shed combination. Sap is pumped 800 feet across fields from a second sugarbush. A pressure filter has been used successfully for the last two years.

The last stop in the afternoon will be at the Elwin Rowell sugarhouse in the village of Glenfield. Here everyone will see a milk plant that has been converted to a central evaporator. Effective efficient use has been made of the dairy plant equipment. A new filtering technique in use by Mr. Rowell will be of unusual interest to everyone.

Activities for the evening include dinner and evening program at the Lowville Academy and Central School in Lowville. Items of interest to all producers will highlight the evening program which promises to be short, snappy and surprising!!

Early the next morning the group will assemble at the Gerald Lyndaker farm at Croghan. The Lyndaker's have a very modern sugarhouse and kitchen that features the very latest in equipment and efficiency.

Amos Lyndaker's sugarhouse several miles away, deep in the woods, will feature three wood fired evaporators that make 2500-3000 gallons of syrup from 11,500 taps using buckets exclusively. The wood storage in this sugarhouse will stagger everyone's imagination. Fancy syrup is the speciality of this enterprise.

A short distance away, deeper in the Adirondacks, a sugarhouse on a private lake and the summer home of Mr. and Mrs. Anthony Zehr and family will be a stop that will be a tour highlight. Here we will see the Zehr maple enterprise that

produces fancy syrup as late in the season as May 6th.

Also on the agenda will be an opportunity to see the havoc caused by the Saddled Prominent Caterpillar Infestation.

Luncheon will be served upon arrival at the Verne & Duane Wicks' sugarbush at Harrisville.

The Wicks' operation features vacuum plastic tubing, all sap and syrup moved by pumps, six evaporators, steam finishing pans, 10,500 taps, stainless steel syrup storage, storage for 23,750 gallons of sap.

The tour will end so that everyone can move on and continue their vacation before 3:00 p.m. on Thursday, August 13th. —

VERMONT MAPLERAMA – AUG. 13-14

A wide variety of production methods, marketing programs and types of research will be featured during the 1971 Vermont Maplerama.

This mid-summer maple program, sponsored by the Vermont Maple Sugar Makers Association, Lamoille County Maple Producers and Vermont Extension Service will be held in the heart of Northern Vermont, the Lamoille County area, on Friday and Saturday, August 13 and 14.

Registration will start at 10:00 a.m. at the Sugar house of Nason Adams in Stowe. Following a box lunch at this stop, the group will visit Paul Percy's operation on West Hill in Stowe and continue on to Franklin Hooper's in Johnson.

Johnson State College will host the tour group for the overnight stop on Friday. There will be an exhibit tour, a cafeteria style banquet, evening program on marketing and lodging at the College.

A pancake breakfast will start the day Saturday followed by visits at Wilmer Locke's in Waterville, Arthur Toof, Jr.'s in Fairfax, and the Proctor Maple Re-

search Farm in Underhill with a box lunch at this last stop.

The Adams operation in Stowe has 4000 trees, one wood and one oil fired 5' x 16' evaporators, with 3000 gallons of sap storage. Oil burners costs per gallon are .85c. Underground piping in the bush transports sap from three dumping stations to sugar house.

Paul Percy has a new sugar house as of 1968, with 6000 taps, 300 on pipeline and 5700 buckets. Boiling is done with two oil fired evaporators, one burner under the first and two under the second.

Franklin Hooper in Johnson has a 388 acre maple orchard. His sap is gathered from 2900 pipeline taps on 8000' of pipeline and 2830 buckets. Twelve gas burners fire his 16' x 28' evaporator.

Mr. Locke built a new sugar house in 1969. A 6' x 14' evaporator is supplied with sap from 800 pipeline taps and 2000 buckets, and is oil fired. Horses are still used for gathering.

Arthur Toof, Jr., has a sap purchasing program and has recently set up a gift shop for sale of maple products.

The Proctor Farm has a young maple orchard with about 1400 taps. Research projects carried on include sap flow, high yielding trees, sugar content, plastic tubing, vacuum pumps, tap disinfectants etc.

Although this Maplerama program is designed primarily for the maple industry, anyone interested is welcome to attend any or all of the sessions.

For further information on program details and reservations, contact Silas H. Jewett, Secretary 1971 Vermont Maplerama at Box 637, Morrisville, Vermont 05661.

PENNSYLVANIA MAPLE TOUR----

The 1971 Pennsylvania Maple Tour will take place in Erie and Crawford Counties of Northwestern, Pa., on October 1 and 2. Plans are being completed by the Northwestern Pennsylvania Maple Syrup Producers Association for an interesting tour.

All maple producers and those interested in Maple syrup products are invited to attend. Headquarters will be the Holiday Inn at Meadville.

The tour will visit maple camps in Erie County Friday afternoon with an interesting dinner meeting that evening. Saturday morning the group will visit more maple operations in Crawford County.

A stop at Pymatuning Lake Museum will be included. Nearby you can feed the large fish and ducks and watch them scramble for the food.

More details will soon be available from County Agent's offices in maple syrup producing counties or from Kenneth Bechtel, R.D. 1, Guys Mills, Pa. 16327, who is chairman of the tour committee.

1971 MAPLE PRODUCTS CONFERENCE

The Triennial Maple Products Conference, familiar to most maple syrup producers, will be moved this year from the Eastern Regional Research Laboratory in Philadelphia to Michigan. Also new to this conference, the National Maple Syrup Council is co-sponsoring the event through assuming the responsibility for local arrangements.

This year the Maple Products Conference will be held October 19 and 20 at Boyne Mountain Lodge, Boyne Falls, Michigan. A resort convention center, Boyne Mountain, offers the best of facilities for recreation for the whole family as well as conference accommodations. The National Maple Syrup Council will meet here October 18, and a package deal has been arranged for both events (3 days for $66, room and meals). Everyone is welcome. Brochures will be mailed to those people who have received announcements of earlier conferences or they may be obtained from Boyne Mountain Lodge. If you write, do not forget to mention the Maple Products Conference.

MAINE MAPLE PRODUCERS ASSOC.

Theodore Harding, Ex-President
William A. Buckland, Sec'y. & Treas.

On March 7, 1970 the eastern section of the country had a partial eclipse of the sun – along the Maine coast it reached 98% totality. It was a fine sap-running day, bright and warm after a crisp night.

Steve Powell of Dresden, Maine, the president of the Maine Maple Producers Association, had just finished emptying buckets from some roadside trees and was resting near them at about 1:15 p.m. when the eclipse was starting. He noticed that instead of the merry ping ping ping of a good run he was hearing only ping . . . ping . . . ping, so he started counting. One tree dropped from 160 drops per minute to 133 per minute, and another from 124 drops per minute to 112 per minute. The temperature dropped from 53 degrees to 49 degrees. By 1:50 when the eclipse was over the trees were again running normally.

John Gould, noted author of books on Maine lore and correspondent for Boston newspapers picked the story up and after much calculation figured that Maine producers lost some 1300 gallons of syrup with a wholesale value of about $7,000, which story appeared in the Boston papers.

Fortunately most people now making maple syrup will not have this catastrophe to reckon with again, as there will not be another eclipse of the sun in this century.

Steve Powell is known among New England producers as the largest and the lowest maple producer. He carries a considerable gross weight on his massive frame as spritely as a teen-age athlete. The sugar house on his farm on famed Merrymeeting Bay is only five feet above high tide so that during a flood tide following one of Maine's roaring north-easters, part of his woodpile floated out to sea. Besides fine maple syrup, his Green Point Farms grow apples, blueberries and general truck produce; also rent houses for ice-fishing and duck blinds for hunting.

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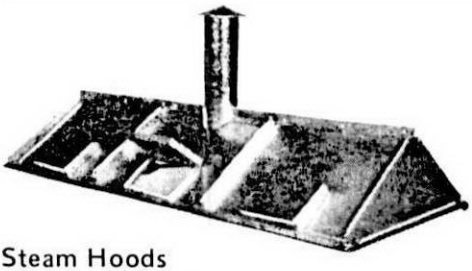

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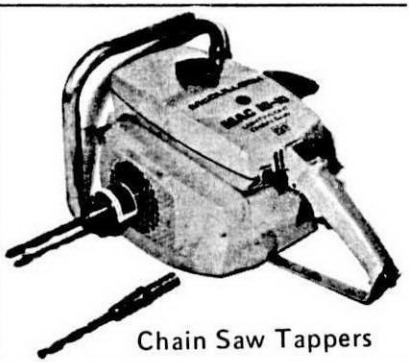

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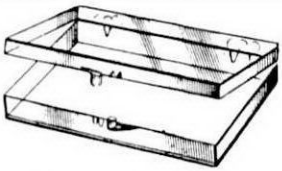

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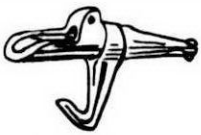

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WHY MAPLE SAP FLOWS

by
Raymond T. Foulds, Jr.
Extension Forester, University of Vermont

For over 70 years scientists connected with the Agricultural Experiment Station at the University of Vermont have studied the question of why sap flows in maple trees when they are tapped in the spring of the year. Even earlier – in 1875 – a man named W. S. Clark had studied the matter at Amherst, Mass. Early work was done by C. H. Jones (1899-1901) at Vermont. Together with A. W. Edson and W. J. Morse he measured pressures within maple trees that were as high as 20 lbs. per square inch. This usually occurred at noontime on a good sap day. However, he found negative pressure of as much as 2.5 lbs. per sq. inch at times such as 9:30 in the morning and 10:00 o'clock at night – when the temperature was near or below freezing.

Jones reported that the cause of sap flow is movement under pressure to the point of least resistance. It is due to temperature fluctuations back & forth across the 32 degree F line. Such fluctuations cause alterations of pressure and suction. During the cooling period the system is re-charged, and flows occur again when pressure develops due to heat. He felt that the flow was probably a function of the living cell, and found that the flow comes mainly from above and below the tap hole. He deduced that pressure was due to expansion and contraction of gases, imprisoned water, and other related factors. The amount of atmospheric pressure outside the tree, which varied from day to day, also seemed to have an effect.

In further studies Jones and his helpers found that air temperatures profoundly affected the sap flow; and that the pressure did not increase unless it was preceded by a rise in temperature. Great and sudden temperature fluctuations were followed by gradual and delayed pressure changes. He noticed that high pressures of 10 lbs. or more may be transmitted vertically for a distance of at least eight feet, while lower pressures are not transmitted quite so far. Pressures are transmitted laterally only with difficulty but are transmitted diagonally quite readily. It seemed probable, he felt, that pressure traverses the tissues entirely by means of certain vessels in the wood which, opening only at the ends, allow free communication up and down and in slightly diagonal directions.

Jones found in addition that a "good sap day" or "a good run of sap" occurs only after the air temperature has remained below freezing for some time. If the day is too bright, warm, and sunny the flow is apt to start up briskly, but soon lessen or stop; or if the wind is too strong, the flow is soon checked. If the sky is overcast, and the air has warmed up a little, a satisfactory run is likely to take place.

Further research by Jones indicated that during the day pressure forces into the tap hole all of the sap located in the adjacent tissues. The suction which ensues on freezing nights draws more sap into the tissues, which in turn is forced out when the tree warms up again. The entrance of the air is hindered, if not quite prevented, by the impermeability of the wet membranes. Thus new supplies of sap are constantly drawn to and forced out of the tap hole when the weather conditions set the "pump" at work.

The work done by Jones was supplemented by work conducted by James W. Marvin, F. H. Taylor, M. T. Greene and F. M. Laing, particularly during the years 1945-1960. They studied the results of work done by Wiegand in 1906, which showed that the movement of sap might be due to osmotic pressure, from the inner tissues of the wood through the ray cells to the outer tissues; and experiments done by Johnson in 1945, which suggested that the availability of oxygen was part of the flow mechanism. They then conducted further experiments, and learned that there is variability in sap flow between stems and also between different sections in the same stem. They also found that some stems flow after only a small temperature rise, while others require a much higher temperature rise; that after a period of stimulation and flow a slow absorption of the vessel sap by the xylem cells occurs; that sap flows sometimes occurred without a freezing temperature; that osmotically active solutes must be present in the vessel solution if a flow is to occur; and that the flow is not proportional to the concentration of sugar present.

With further work Marvin, Greene, and Laing found that sucrose is not a specific requirement for sap flow; that living cells are an essential part of the mechanism; that the volume of flow is related quantitatively not to the temperature rise on the day of the flow, but instead to the preceding cooling period (the so-called "conditioning factor"); that during the sap flow season the ground is not frozen, but is usually at a temperature of 33 degrees F; and that, if the system is ready and the conditioning period has been adequate, a temperature rise of only one to three degrees above freezing will "trigger the mechanism" and cause a sap flow.

Since 1960 Marvin, Laing, and Dr. Mariafranca Morselli have been continuing their investigations. They have found that the best sap flows occur when the entire tree is rapidly warmed as a unit (twigs, stem, and roots); that trees which produce the highest volume of sap are also those which have the highest sap sugar content; that there are anatomical differences between high and low sugar content trees; and that sugar content and flow characteristics in young maples vary more widely than in mature trees. They noted that sap flow as a polar movement in the tree does not actually occur during the sugar season unless a tap hole or other "wound" is made. They have found that the best sap runs occur when there is a conditioning period of from 36 to 48 hours of freezing or near freezing temperatures followed by rising temperatures that simultaneously warm the twigs, stem, and roots. A warm night will continue the flow into the second day. If the temperature rises the second day a continuous flow of 36 to 48 hours is not uncommon.

In the future Marvin and the other workers at the Proctor Maple Research Farm in Underhill, which is operated by the Vermont Agricultural Experiment Station, feel that additional work will be done to unlock the final mysteries revolving around sap flow. Questions to be answered include, "Where does the solution come from that causes vessel sap pressure and flow?"; "Does any of the solution come from the bark?"; and "What mechanisms cause temperature changes to affect enzyme systems and membrane permeability?". Translocation studies are needed which will use isotopes to follow solute and water movement from the soil into the roots, and from the roots to the stem. Nutrition and growth studies on individual trees are needed. Some of the experiments can be done in the laboratory, using small trees and tissue cultures.

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MAPLE SYRUP REPORT

from
New York Crop Reporting Service

NEW YORK

The season was late in starting – but comparable to last year. The average run was from March 20 to April 17. Very heavy snow cover made it difficult to tap trees early in the season. Total taps were slightly below last year. Lack of warm daytime temperatures and difficulty in collecting sap was attributed to the decline in production.

NEW ENGLAND

Cold weather and deep snow caused a late start in the 1971 season. A poor yield was realized primarily because of a lack of the needed daily fluctuation in temperature throughout the season. Reporters commented that there were almost no good runs, that the sap just "drizzled". However, the quality of syrup produced this year was better than normal.

PENNSYLVANIA

Although the 1971 maple syrup production equalled last year, the season as a whole was not as favorable. Syrup quality was good but the sweetness did not measure up to the 1970 level. Color was considered medium to light.

MID-WEST

Ohio was the only state to show an increase in production. Their slightly warmer temperatures produced 110,000 gallons putting them in third place in production this year.

Michigan was down slightly below their 1970 level while the cold temperatures and extremely short season allowed only a half of a normal crop in Wisconsin and about one third of a crop in Minnesota.

ONTARIO

A report from the Ontario Department of Agriculture states that the flow of sap in most parts of that province was very light. The southwestern area produced a normal crop, but deep snow and adverse weather conditions limited the production in the northern and eastern areas to 25% to 75% of a normal crop.

No official report was received from Quebec, but the "grapevine" puts their production at about two-thirds of a normal crop.

MAPLE SYRUP: New York and other States

State	Syrup Made 1/		
	1969	1970	1971
		1,000 gallons	
New York	348	332	295
Maine	8	10	8
New Hampshire	44	51	40
Vermont	290	305	240
Massachusetts	29	32	25
Pennsylvania	86	94	94
Ohio	84	92	110
Michigan	78	94	86
Wisconsin	65	100	56

1/ Includes syrup later made into sugar. Does not include production on nonfarm lands in Somerset County, Maine.

TRIBUTE TO AL SNOW

The Vermont Maple Sugarmakers Association hereby pays tribute to Al Snow for outstanding service in the field of the maples. Al retired as director of the Northeast Forest Experiment Station in Burlington, Vt., at the end of May.

Sugarmakers everywhere will long benefit from the efforts of Al and his crew. The record of the Burlington unit is outstanding and it's research benefits will make their effect on the industry for years to come. We have been most fortunate to have a man of Al's caliber heading up this project. You will be missed, Al! Good luck!

VERMONT MAPLERAMA '71

Don't miss Maplerama '71 to be held in the heart of northern Vermont, in beautiful Lamoille County, Home of Mt. Mansfield, Stowe, and "Sound of Music" Trapp Family. Here is where the action is and it starts Friday, Aug. 13 and goes thru Sat., Aug. 14. You will visit several maple farm operations and the Proctor Maple Research Farm. Box lunches available along the way.

Friday night banquet, program and lodging at Johnson State College evening program to include entertainment, exhibits, a showing of Vermont's new $16,000 maple movie and featured as speaker, Dave Garrett, project leader of maple market research, North East Forest Experiment Station, USDA.

For information, lodging reservations, program, etc. contact: Si Jewett, Lamoille Extension Service, Morrisville, Vt. 05661. Phone 802-888-4972.

* *

Now that maple consumption is twice the supply, our state forester, Ray Foulds, is heading west for a year to Oregon where he hopes to show the natives how to make syrup from redwoods! Seriously, we wish Ray the very best.

VERMONT MAPLE SUGAR MAKERS ASSOCIATION, INC.

WHAT PRICE MAPLE SIRUP[1]

John J. Bradley
and
Robert R. Morrow

So you are hesitant to raise the price of your sirup to $8.00 – or perhaps even $7.00. Our study, covering the period 1950-69, shows that others have not been reluctant to increase prices. The average 20 year price increases for several commodities are as follows:

wages	82 percent
steel	66 percent
metal products	64 percent
MAPLE SIRUP	45 percent
cornflakes	69 percent
bread	61 percent
tobacco	57 percent
hot dogs	45 percent
round steak	35 percent
cane sirup	34 percent
hamburger	10 percent

The first three commodities (wages, steel, metal products) have special significance because they govern the costs of making maple sirup. Most of you have felt the pinch in hiring labor or purchasing new evaporators, tanks, marketing containers, or other metal products to keep your maple operation going. Only increased efficiency in production has enabled sirup prices to remain low in comparison to costs.

The seven food and tobacco commodities were selected to show a range of price increases for products that are purchased daily from store shelves. Most people don't sense the increased prices because they occur slowly over a long period of time. Maple sirup, on the other hand, has usually been offered for sale only seasonably and then at low prices. No wonder that people notice price rises and tend to think they should still pay "only $5.00 or $6.00" per gallon.

In terms of purchasing power of labor, maple sirup is much cheaper now than in the past. The following table shows average price per gallon, average hours necessary to work to be able to purchase a gallon, and approximate average time needed to produce a gallon of sirup for the years 1954 and 1969.

	1954	1969
Average price	$4.35	$5.80
Hours to purchase	2.4	1.8
Hours to produce	2.0	1.4

The average wage earner now needs to work less than 2 hours to earn a gallon of maple sirup. Two generations ago, at least a day's work would have been needed. Also note that almost as many hours were needed to produce sirup as were needed to purchase it. Since labor represents less than half the cost of producing sirup, it is obvious that the average wage earner receives considerably more for his labor than the average maple producer.

We think that maple sirup should be made as a high quality product and suitably marketed at a price that reflects a fair return to the producer. There are sound arguments for raising prices, and we think maple people should explain them to their customers. The $5.00 per gallon sirup is about as antiquated as the nickel cup of coffee and 20 cent gasoline.

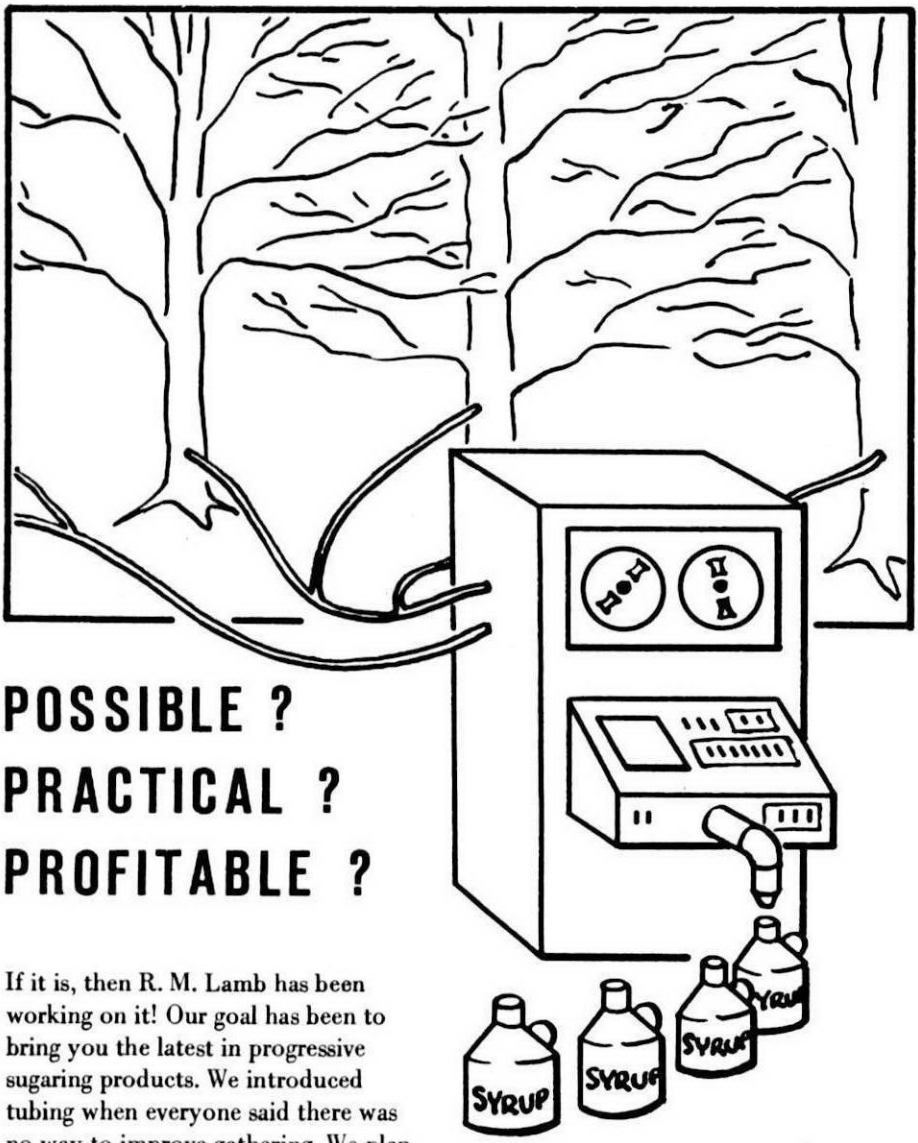
[1]Based on a study made at Cornell University in the spring of 1971.

Classified

Editorial

There is no editorial in this issue; don't look for it. I'm too discouraged to even try to think of a topic to write about. I'm also disheartened, dejected, disgusted and just plain fed up!

Since September 1st, from approximately 7000 readers of the Digest, I have received contributions from only 763. I want to thank those 763 good people because I think it's the same 763 I heard from last year. To the others, I can only say I guess it's time someone else tried their hand at begging for money, I've had it!



POSSIBLE ?
PRACTICAL ?
PROFITABLE ?

If it is, then R. M. Lamb has been working on it! Our goal has been to bring you the latest in progressive sugaring products. We introduced tubing when everyone said there was no way to improve gathering. We plan to keep on researching ways to make the maple business easier and more profitable for you.

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