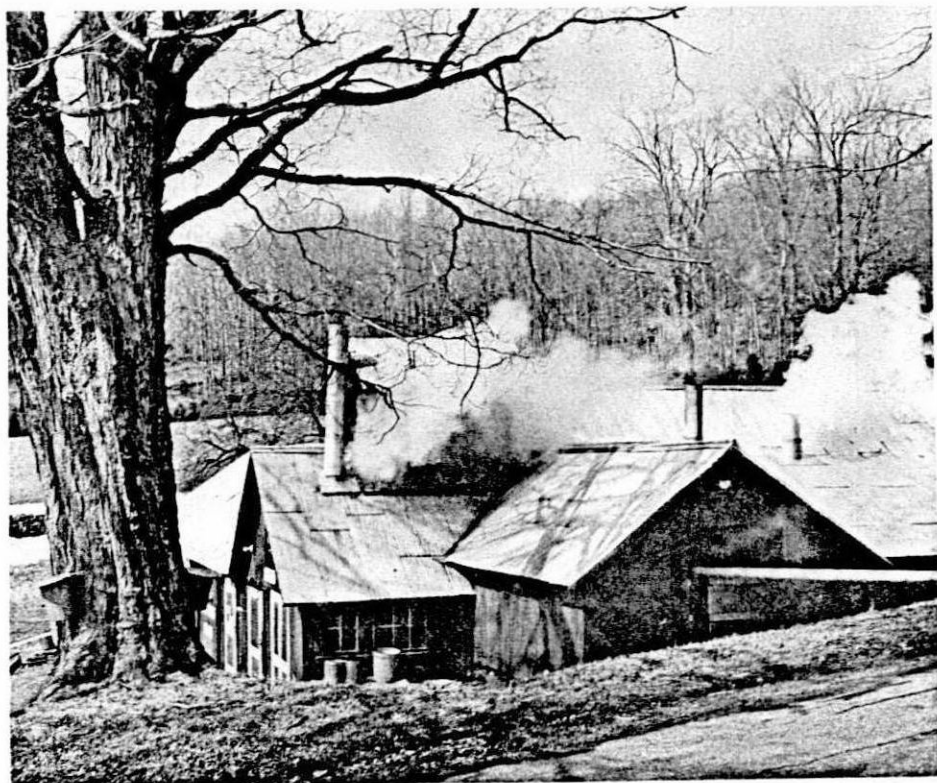


# NATIONAL MAPLE SYRUP DIGEST NATIONAL

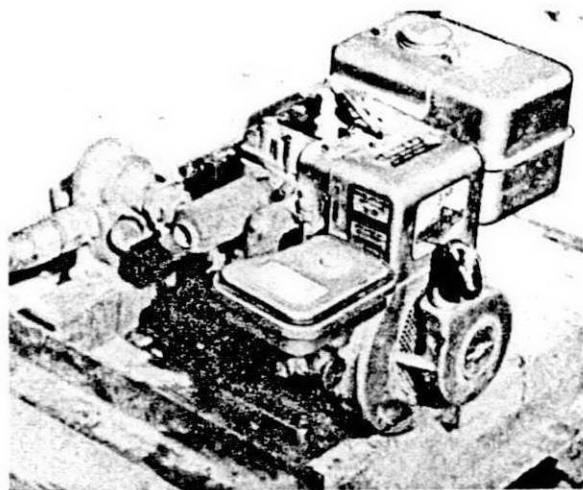


Vol. 15, no. 3

October, 1976

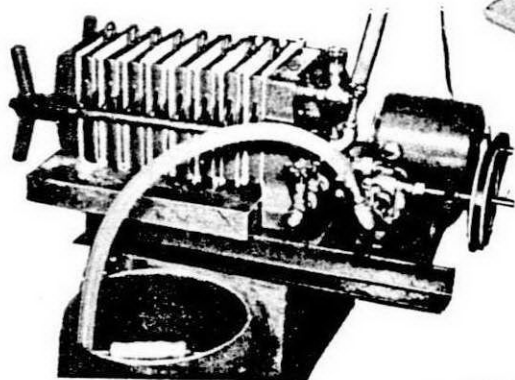
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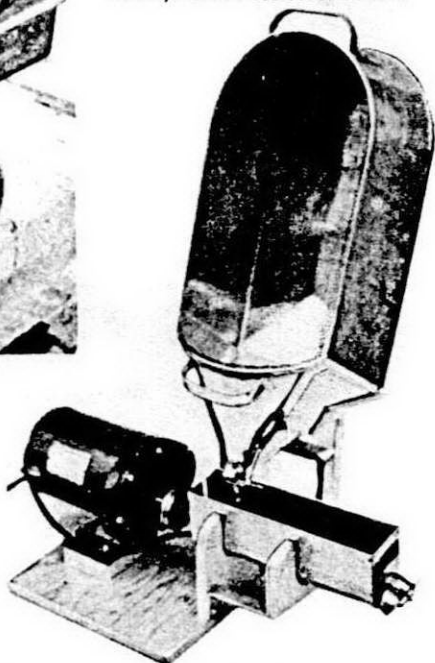


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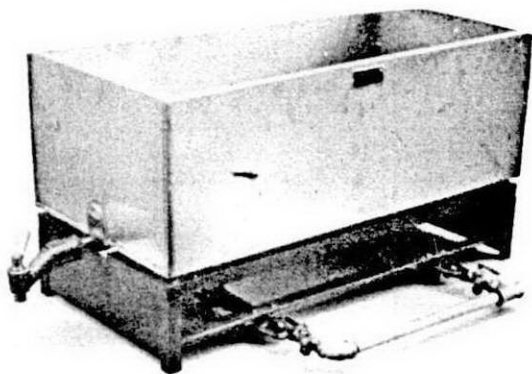
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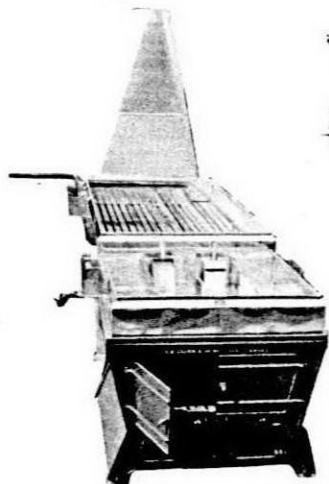


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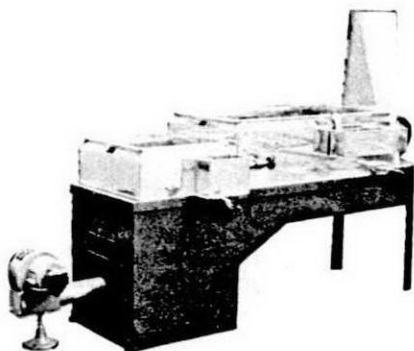
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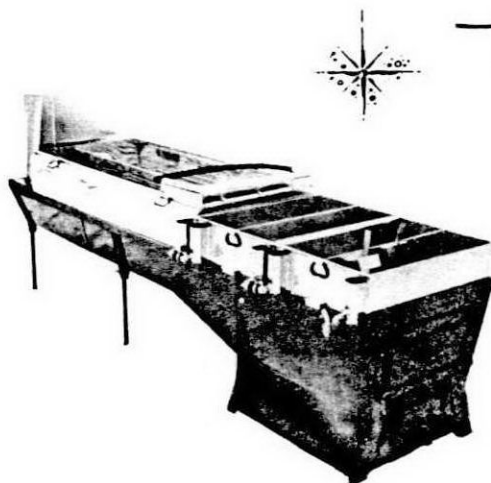
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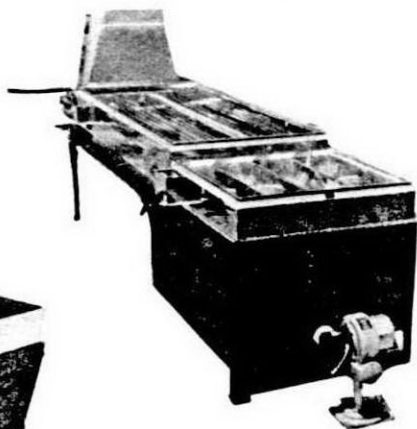
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Sugar House on the Lesure  
farm, Ashfield, Mass. See  
article on page 6.

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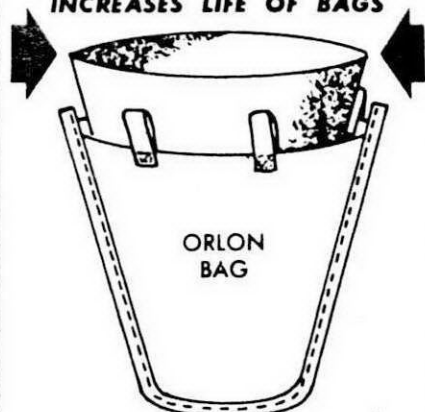
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# Editorial

I've been thinking about the correspondence received the past year or two and it appears there are a few points that need to be explained so here goes:

**Schedule:** The Digest is published four times a year but not quarterly. It comes out the first of October, December and February because that's the time of year you should pay attention to the ads and get ready. There's a long skip after February because that's when I make a little maple syrup and you're all too busy to read it anyway. Then we print one early in July just to keep you interested in the business. Each issue is mailed within a day or two of the first of the month so if your copy is delivered on the 15th— that shows you how slow the mail is.

**Deadline:** The deadline for copy is the first of the month preceeding the issue. In other words, the deadline

for the December issue is November first. Sometimes we can allow a few days more time but copy received two weeks late just can't be used in that issue.

**New Subscriptions:** We always receive quite a few new subscribers in late January and February. They invariably ask for the February issue. It's much more expensive to mail individual copies as compared to bulk mail to say nothing of the extra time it takes. If we wait and start with the July issue, we get a lot of letters asking what happened. This requires letter writing to explain the delay and a lot of wondering about which is the easiest way—answer the letters or send the separate copies in the first place.

**Mailing lists:** Association secretaries keep sending me their complete lists instead of just the additions and deletions. This takes a lot more time to sort out the few that are not already on our list. Please—send only the additions, deletions and address

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**First Class Permit:** Our first class permit has run out as of right now. This permit, which was free of charge, allowed you to mail us the self-addressed envelope enclosed in the February issue with no stamp on it. We paid the postage on this end. It cost a little more (\$.18) but saved you the cost. The Postal Service decided that 5 cents a letter extra wasn't enough so they have a new system. There's a choice of two ways to do it now but the cheapest way would cost us about 35 cents a letter. This is out of the question so we'll have to ask you to put a stamp on your contribution next winter. The post office will get less than they did before but if that's the way they want it, then so be it.

**Addresses:** Postal regulations for third class mail require complete addresses. Everyone (except General delivery) has some kind of an address (P.O. box, street and number or RFD and box number) besides their town, state and zip (we must have the zip code or the post office won't even accept it.)

**Address Changes:** When you send us a change of address, be sure to include your old address. Believe it or not, we've received several changes with no old address. Now, how can we find the old plate to take it out?

**Good News:** Now that I've got the "gripes" all off my mind, here's some good news. I haven't closed the books yet on the last fiscal year, but right now it looks like we might come close to balancing the budget this year, thanks to our advertisers and all of you who contributed. At least our deficit should be less than last year. With the increase in the cost of printing and postage it looks mighty encouraging.

## 50th Anniversary

Our cover picture this month is of the sugar house on the Lesure Farm, Ashfield, Mass. The maple business, now operated by their son, Bob, was built up by Lin and Vera Lesure who are celebrating their 50th Wedding Anniversary this year on October 3rd. Lin represented Massachusetts on the North American Maple Syrup Council as a charter member, was a past president and director for many years and is now a life member of the Council.

The Council and the Maple Syrup Digest send Lin and Vera their best wishes for many more "Golden Years."

### ROBERT BORDEAU PROMOTED

At the Annual Meeting of the Stockholders and Directors of Leader Evaporator Co., Inc., held in St. Albans on June 28th, 1976, Mr. Robert Bordeau was elected Executive Vice-President of both Leader Evaporator Co., Inc. and United Maple Products Co., Inc. Mr. Bordeau will continue on as General Manager as in the past.

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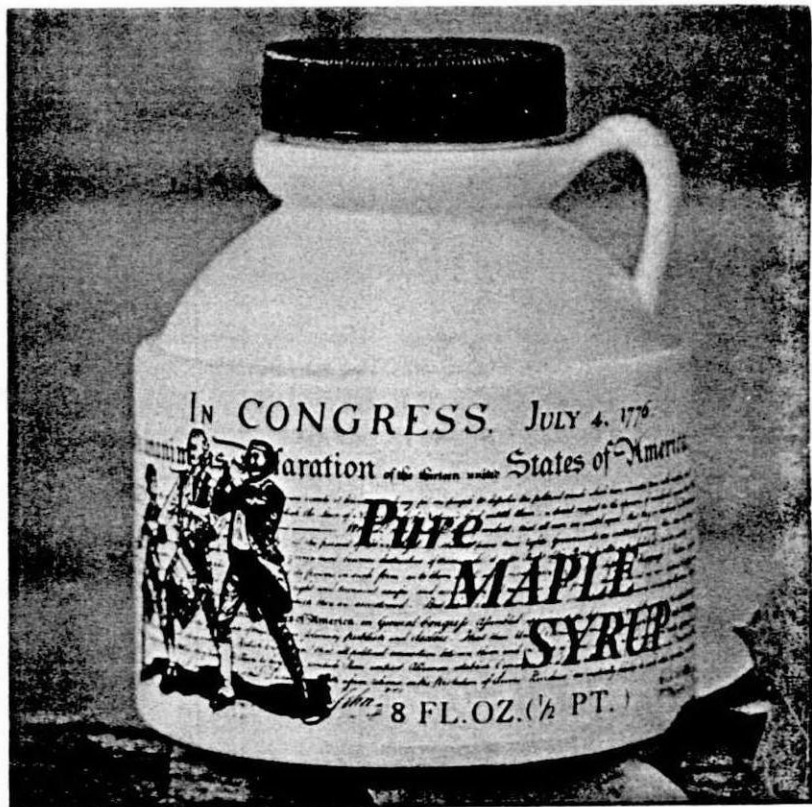
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## THE DEPARTMENT OF NATURAL RESOURCES EXTENSION PERSONNEL UPDATE

Mr. Lewis Staats has recently been appointed to the position of Regional Extension Specialist, Maple Syrup. He is continuing the Extension work that Professor Fred Winch had carried on up until his retirement.

Mr. Staats, a graduate of Paul Smith's College, worked for the United States Forest Service before becoming the resident forester for the Uihlein-Cornell Experimental Sugar Bush at Heaven Hill Farm, Lake Placid, New York, in 1966. As resident forester there, he worked under the direction of Dr. Robert Morrow. He was responsible for the 4,000-tap pilot plant maple operation and for conducting Dr. Morrow's research related to cold weather and high elevation tapping conditions. This work resulted in the adaptation of maple pipelines and tubing to Adirondack conditions, and a major study of vacuum as developed in tube lines. He used the operation to



demonstrate the new and better means of sirup production to producers from around the state, particularly those in the Adirondack region.

In the last few years, Mr. Staats also worked with Professor Fred Winch in the Cooperative Extension maple schools in the northern counties. This involvement gave him Extension experience to add to his research experience. Because of his interest and dedication, combined with this background, Mr. Staats is held in high esteem by his colleagues and maple producers alike, which led to his recommendation and appointment to his new post.

In addition to his new Extension duties, Mr. Staats will continue as Resident Forester for the Uihlein-Cornell Experimental Sugar Bush at Heaven Hill.

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# Density of Sap and Sirup

Robert R. Morrow

Department of Natural Resources, Cornell University

**Density.** The density of both sap and sirup is due to dissolved solids and not simply sugar. Instruments typically used in the maple industry measure the density of dissolved solids. However, sugar accounts for about 98 percent of the dissolved solids in sirup and 97 percent in sap. Therefore reasonable estimates of sugar content are possible.

Density of sap and sirup can be measured in three ways: by weight, refractometry, or hydrometry. Weight measures are too inaccurate and refractometers are expensive. Hydrometers with long stems (needed for accuracy in reading the scale) are both accurate and relatively inexpensive; they are

most commonly used. A hydrometer is a glass or plastic bulb which, when floated in a solution, displaces some volume, depending on the density. If the Brix scale is used, the density of solids (in percent) is read directly; the Baume scale is less useful. Hydrometers are specially made, either with a low scale for sap or a high scale for sirup.

Since the level of flotation changes with temperature, hydrometer readings must be corrected. The temperature corrections for a sap hydrometer, calibrated for 68° F, are as follows:

32-40° F	- .4° Brix
45-50° F	- .3° Brix
55-60° F	- .2° Brix
65° F	- .1° Brix
68° F	no correction
70° F	+ .1° Brix
80° F	+ .4° Brix

If sap at 45° F has a hydrometer reading of 2.5° Brix, the sugar content is approximately 2.2 percent ( $2.5 - .3 = 2.2$ ).

Temperature corrections for a sirup hydrometer are approximately as follows:

45° F	- 1.0° Brix
55° F	- .5° Brix
68° F	no correction
80° F	+ .5° Brix
100° F	+ 1.5° Brix
120° F	+ 2.5° Brix
150° F	+ 4.0° Brix
180° F	+ 6.0° Brix
210° F	+ 6.7° Brix

If sirup at 100° F has a hydrometer reading of 65° Brix, the sugar content is approximately 66.5 percent ( $65 + 1.5 = 66.5$ ). If you want a density of 66

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percent, hot sirup (210° F) should have a Brix reading of 59.3° (59.3 + 6.7 = 66).

**Rule of 86.** The amount of water to be removed to reduce sap to sirup varies with the density of the sap. By the Rule of 86, divide 86 percent by the sugar percent of sap to obtain the number of gallons of sap per gallon of sirup. For example, 43 gallons of two percent sap are needed to make a gallon of sirup ( $86 \div 2 = 43$ ).

The rule is derived as follows: (a) The number of gallons of sap per gallon of sirup is equivalent to the weight of dissolved solids in sirup divided by the weight of dissolved solids in an equal volume of sap. If a gallon of sirup and a gallon of sap had equal weight, we could simply divide the sugar percent of sirup by the sugar percent of the sap. (b) Standard-density sirup was formerly 65.5° Brix and weighed 11 pounds per gallon. The weight of the dissolved solids was approximately 7.2 pounds (65.5 percent of 11). On the other hand a gallon of water weighs

approximately 8.34 pounds and a gallon of sap weighs slightly more, depending on the sugar content. For low sugar percentages, the difference between the weight of water and sap is very small and is omitted from computations. (c) To compare the density of sirup and sap on an equal weight basis, divide the weight of dissolved solids in a gallon of sirup by the weight of a gallon of water to obtain 86.3 percent ( $7.2 \div 8.34$ ). This figure, rounded to 86 percent, divided by the Brix value of sap equals (appr.) the number of gallons of sap per gallon of sirup.

Present standards require 66° Brix. Because of sharp changes in viscosity at this level, customers prefer even thicker sirup. Many people aim for 66.5° Brix. To obtain this the Rule of 86 becomes the Rule of 88 ( $66.5 \times 11.05 = 7.35$ ;  $7.35 \div 8.34 = .881$ ).

Reference:

Willits, C.O. Maple Sirup Producers Manual. USDA Agr. Handbook No. 134. 1965.

## American Maple Products

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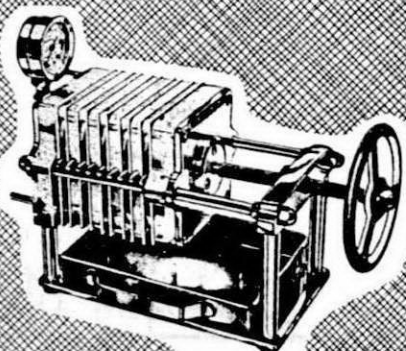
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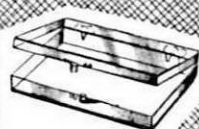


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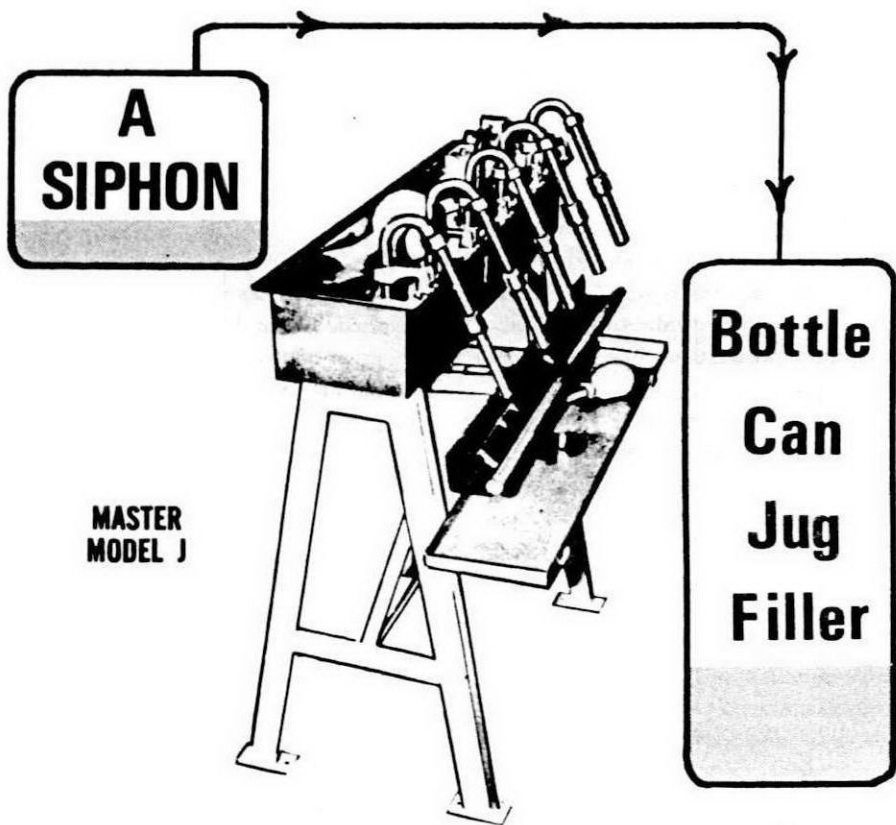


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# LETTER TO THE EDITOR \*\*

Paul E. Sendak and Lawrence D. Garrett

\*\* with reference to "The Long Term Trend" by Buongiorno and Orr, Maple Syrup Digest - July, 1976.

Messrs. Buongiorno and Orr in the July issue of the *Maple Digest* state that over the long term, maple prices measured in dollars of constant value have increased. We agree. They also state that the reason for this increase has been lagging productivity of labor in maple production. We agree with this in part.

However, we disagree with their statements that (1) unless the industry can reverse the long term price trend, "it is bound to see its' market constantly shrink . . ." and (2) "that maple sirup consumption has been systematically decreasing because of the availability of imperfect, but cheaper, substitutes."

Statement (2) is more easily disposed of. We feel a more important factor in the decline of U. S. maple production is the demise of the small farm. This implies a problem with the supply of maple and not a problem with the demand for maple as the authors imply in (2).

Annual U.S. sirup consumption has been much more consistent than might be inferred from U.S. production data alone, but the authors equate U.S. consumption to U.S. production. Over the long term, as a country, we have been importing more and more Cana-

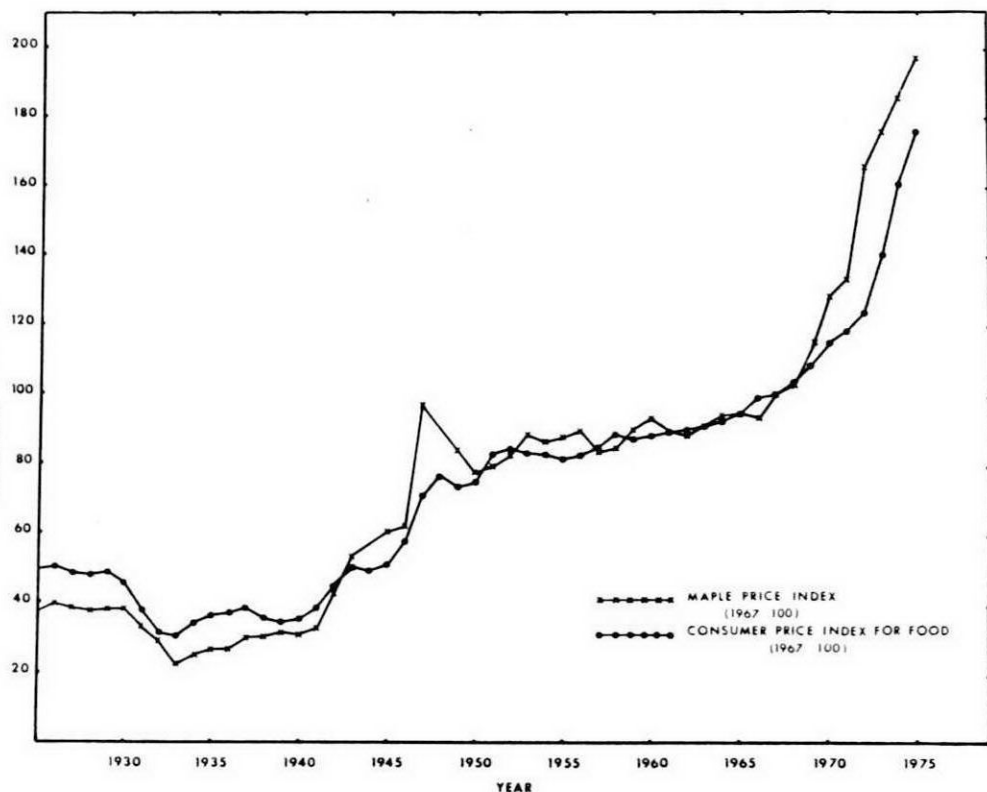
dian maple to satisfy the demand for maple products, which could no longer be satisfied by U.S. production alone.

To deal with statement (1), we created a simple price index for maple using the same price data the authors used. This index expresses annual sirup price relative to the price in the selected base year—1967. We compared this price index to the Consumer Price Index (CPI) for Food calculated for the same base year. The graph is a plot of these two indices from 1925 to 1975.

The CPI for All Commodities is generally regarded as a measure of the cost of living or the general price level. The CPI for Food is an important component of the cost of living and, we feel, more relevant in judging the maple price trend.

The graph of the two indices shows that movements in one index are followed closely by movements in the other index. Thus, relative annual changes in maple prices closely parallel the changes in the general price level for food.

Based on this fact, we feel that the unqualified warning by Buongiorno and Orr against future increases in maple prices is unwarranted. A parallel example may be found in the local barbershop. For many years there has



been no increase in the productivity of labor for cutting hair—a barber can give just so many haircuts in an hour. However, the cost of living has been steadily rising. If the barber did not raise his prices relatively the same amount as the increase in the cost of living, the real value of his total income would steadily deteriorate until he could no longer stay in business. Such is the plight of the sugarmaker.

There have been times when maple prices have increased more than the increase in the general price level for food. We are in one of these periods at the moment; another occurred in the 1940's, as can be seen on the graph. However, the reasons for these accelerated price increases can be explained by some unusual factor such as ab-

normal weather conditions, causing supply shifts; or government action, such as sugar rationing or price controls, which occurred during the years of World War II. There is not enough space here to elaborate on maple price behavior that deviates from the trend. Suffice it to say that deviant price behavior can usually be explained by some temporary shift in maple supply or demand or both caused by factors outside the maple industry.

We have presented an alternative to Buongiorna's and Orr's interpretation of price trends in the maple industry. We feel it is an alternative that is more consistent with the existing facts; and, it does not necessarily lead to the pessimistic conclusion of a constantly shrinking market for maple products.

# THE QUALITY OF MAPLE TUBING

Robert R. Morrow

Dept. of Natural Resources, Cornell University

With increasing acceptance of plastic tubing for maple sap collection, with more know-how in its use, and with more brands currently available, it is appropriate to consider what makes a desirable tube or tube system. Some important and desirable characteristics of plastic tubing are as follows:

- a. Safe and non-contaminating.
- b. Easy to handle over a wide range of cold temperatures.
- c. Good grip between tubing and fittings (yet able to separate).
- d. Inexpensive and durable with time and use.
- e. Smooth bore to aid sap flow and

cleaning.

- f. Partial coloration to absorb heat and hasten thawing.
- g. Stability in warming weather to minimize sag in tube lines.
- h. Rodent-resistant.

This is a formidable and probably impossible list. How can a rodent repellent be added to tubing and keep it food-safe and inexpensive? How can tubing be easy to handle at 20° F with only minimal sag at 65° F?

Minimal sag in tube lines between tapholes is important to reduce friction and enhance sap flow under all conditions whether there is natural vacuum, or no vacuum. To partially evaluate vertical sag and ease of handling of tubing in use, we purchased samples of



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several brands in 1975. Tests<sup>1</sup> were made at both the Arnot Forest in southern New York and at Heaven Hill in the Adirondack Mountains. They were made during midwinter as well as during the sap season.

In November each brand of tubing was cut into 12, 24, and 36-foot lengths and installed in adjacent locations. Each length was pulled taut to virtually eliminate initial sag. Within a couple of weeks the tubing sagged noticeably and remained that way until removed about 10 weeks later. The same was re-installed for a 6-week period during the 1976 maple sap season.

The principal results were as follows:

- a. Vertical sag ranged from 1 to 8 inches for the 12-foot lengths. For the 24-foot lengths, it ranged from 4 to 22 inches, and for the 36-foot lengths, 8 to 40 inches.
- b. The amount of vertical sag at Arnot Forest was generally more than double that at Heaven Hill. This probably reflects differences in tautness in the original installation by different workers, as well as a generally warmer climate in southern New York. There was also more sag during the warmer weather of the sap season than during the winter.
- c. Those brands of tubing most commonly used in New York were easy to handle under most conditions. One brand, designed for use elsewhere, was more difficult to handle. It was hard to unwind and pull tight and it often had excessive sag.
- d. Of those most commonly used in New York, one brand was notably more flexible with more

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vertical sag, especially at Arnot Forest. In a separate trial fo 500 taps at Heaven Hill, the amount of sag was greatly reduced by using tube holders for support of long lines between trees. Too much flexibility could induce more tube collapse with vacuum.

In another test, a 500-tap tubing installation was made with a mixed assortment of equipment, including tubing, spiles, tees, tube holders, pipe line, and tee manifolds. That is, one brand of tubing was used with another brand of spiles, still another brand of tees, etc. The mixed equipment was

readily installed, removed, and cleaned, and it was virtually maintenance-free during the season.

Although there are clear differences between some brands, there is a variety of improved tubing and associated equipment from which maple producers can choose.

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<sup>1</sup>- It cannot be assumed that the test samples were representative of all tubing marketed in 1975. Results may not apply to future plastic extrusion mixes or to differing climatic conditions.

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## MASSACHUSETTS

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### MAPLE PRODUCERS ASSOCIATION,

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**Born on January 24, 1976**

The members of the Berkshire Pioneer Maple Producers' Association, Inc., an organization born just 30 years ago by a few maple syrup producers in the Berkshire hills and Pioneer valley of Western Massachusetts, voted unanimously at their annual meeting to become a new State-wide organization to be known as the Massachusetts Maple Producers' Association, Incorporated. This non-profit association was formed for the benefit of its members in all phases of maple production and for the promotion of maple within the state. We will remain a member of the North American Maple Council with Russ Davenport our Council director and also a member of the International Maple Syrup Institute.

The association purchases syrup containers and shipping cartons for its

members and acts as a clearing house for the possible sale of syrup. A board of nine directors holds several meetings a year to handle the business at hand and keep the association up to date.

A coordinator is elected from the board of directors to handle all buying and selling of containers and cartons.

The first few members thirty years ago have grown to 107 members from the western two-thirds of the state. The President is Milton Williams of Deerfield, the Secretary Harold White, Jr. of Charlemont and the Treasurer-Coordinator is Russ Davenport of Shelburne. The nine directors are Milt Williams, Russ Davenport, Ed Gould-Shelburne, Pete Hamnum-Whately, Don Burnett-Conway, Forrest Curtis-Chesterfield, Harold Roberts-Colrain, Stebbins Howes and Francis Wells-Cummington.

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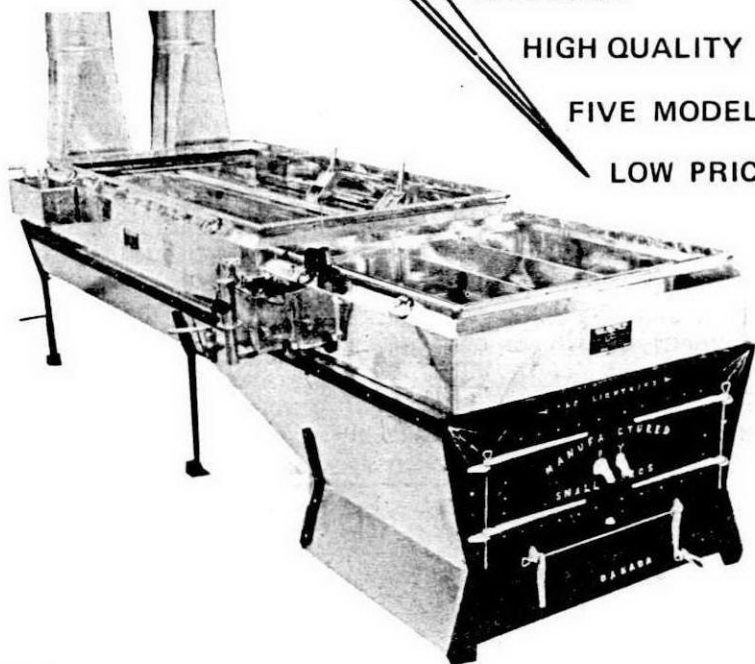
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# New York Maple Tour

On August 9th and 10th Schoharie and Otsego Counties were hosts for the 1976 New York State Maple Tour with nearly 200 people in attendance. People came from all parts of New York State and as far away as Minnesota, Michigan, Pennsylvania, Ontario and New England.

The people started assembling about 10:30 a.m., on an overcast and misty day, for registration at the Taylor Farm Sugar Camp, operated by Henry and Martha Dayton, near Stamford. Martha and Hank are both active in community affairs and Mrs. Dayton was the first woman to serve in the state as chairman of a county Board of Legislators. Their maple operation is an old and well established business started before the turn of the century. The sugar house is the third to be built on this farm, which is a New York State Century Farm receiving recognition many years ago. At the present time, however, it consists of 2500 taps and they purchase sap from an additional 500 taps. Hank sells maple products to the fruit stands along the Hudson river and stores in Schenectady, as well as selling at the farm.

For the second stop we travelled to the Putnam farm on Beard's Hollow Road, Richmondville. Originally an old school house, the Putnam's remodeled it into an efficient and modern sugar house and retail sales room. They sell all their maple products, combining deerskin, handcrafted products, leather goods and ceramics, through their store. Ray, an ingenious person, has an alarm warning system that rings when the sap tank is at a high point so it does not

overflow; another alarm rings when sap in the evaporator falls below one inch. They have 2500 taps on plastic tubing on a vacuum pump.

The tour moved to Harold Tyler's maple farm in Westford - Otsego County. This operation has 8000 taps at the present time, plus, he buys sap from an additional 7000. Harold has produced maple products commercially for 30 years. Two-thirds of the sap boiling is with steam, the remainder with an industrial burner using used motor oil. Harold is using a pre-heater over his evaporator. He markets his products many ways, including a large mail order business. He has a very attractive kitchen and sales area where syrup, cream and sugar are displayed, and pancake dinners are served by the churches most Sundays during maple season.

The evening program, which proved to be most interesting, was held at the Holiday Inn, Oneonta, preceded by a buffet dinner. Earl Feinman, Cooperative Extension Agent, welcomed the group to Otsego County. Earl introduced Bob Banta, who showed slides and talked about hop growing, as it once was an important agricultural crop in Otsego County - 100 years ago. The program was different and a change of pace which was enjoyed by the group. Max Neal, President of the New York Maple Producers, gave a short report. John Adams spoke briefly about the International Maple Syrup Institute. Lloyd Sipple spoke about the Maple Digest. Hugh Worden, Lewis County Cooperative Extension Agent, told of the progress being made with the National Maple Museum located at Beaver Falls in Lewis County.

The group reassembled August 10th

at the Schoellig Brothers sugar house near Garrattsville. Edmund, who is in charge of the maple business did a fine job of explaining their operation in a limited amount of time. This is a relatively new operation with 2000 taps on buckets. They have a nice new roadside sugar house. It contains a 5 x 20 wood-fired evaporator, 4 x 8 oil-fired evaporator and 4 x 10 for finishing syrup. Mrs. Schoellig, Ed's mother, had hot coffee and tea with many goodies—maple cake and cookies as refreshments.

The 70-car caravan moved eastward toward Cooperstown to the Bob Banta sugar house. Bob has a new operation with about 400 taps on tubing. Bob and D.E.C. Forester Richard Weir explained the tubing layout and how they handle and clean the tubing. Bob uses a wood-fired evaporator. This is just another one of his hobbies, however, I believe many people on the tour came away with some good ideas.

The final stop was at the Fassett Brothers' (Homer, Kermit, and Myron)

sugar bush at East Springfield. Homer, the oldest brother, who operates a machinery business, is the man who tends the two evaporators, both of which use wood with some oil - 2,800 buckets are hung each season. The bush is flat and on high lime soils making filtering a problem. Kermit and Myron own and operate the Clinton Camp dairy herd of Registered Holsteins. Both of these brothers, along with nephews, do the gathering keeping Homer moving when sap is running. The bush was hurt by an ice storm in 1942 but has made a good comeback. Homer made a point of how the nephews, and others who work in the bush, are paid. He said that it takes one hour of labor to produce one gallon of syrup. Homer markets all of the products at his machinery shop store and at a Mobil station where the merchandise is displayed outdoors on a wagon—not inside, but outdoors.

While at the bush a wood-splitting demonstration was conducted by Loren, Homer's son, and Kermit, The splitter

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was rear-mounted vertically on a tractor and operated hydraulically.

An excellent tour with very good stops and numerous ideas obtained.

— Earl S. Feinman

## *Classified*

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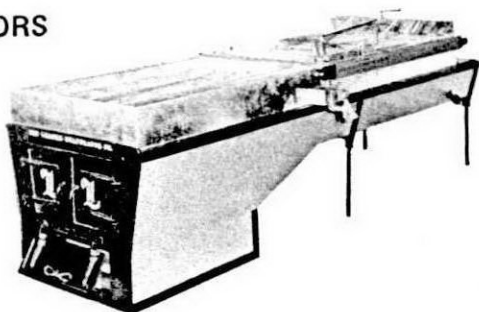
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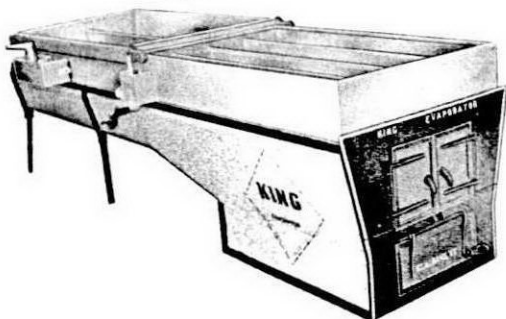
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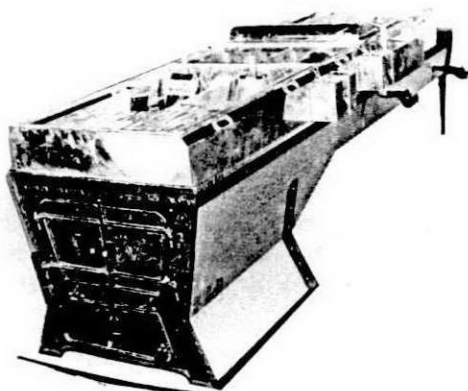
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