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Homemade Maple Syrup

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Maple syrup and sugar are among the oldest agricultural commodities produced in the United States. The American Indian is generally credited with discovering the conversion of maple sap into maple syrup. The importance of maple products for local trade was established well before the arrival of the Pilgrims in 1620.

Vermont and New York are states having the largest amount of maple syrup production. Until rather recently, maple syrup and sugar have been strictly a "sideline" farm crop; however, the production of maple syrup and other maple products is often a full time operation.

Maple syrup and sugar is one agricultural crop in which there is no surplus. In fact, demand far exceeds available supply. The industry is not expanding, even though less than one percent of the potential resource is being used.

While there are several species of maple trees growing in Minnesota, only two are used in the commercial production of maple products. These are sugar maple *(Acer saccharum)* and black maple *(A. nigrum).* Sap suitable for conversion into syrup may also be obtained from red and silver maples, although such sap usually has a lower sugar content.

Sugar maple is a common tree throughout the forested regions of Minnesota. Its greatest concentration in forest stands occurs in the east and north portions of the state. In addition to its use for sap production, it is a valuable tree for lumber, and is used extensively in fine furniture. In addition, it has been widely planted as a shade and ornamental tree.

Equipment Necessary

Maple syrup can be produced with a minimum of equipment, but a few standard items increase efficiency of the operation and quality of the product:

A drill with a 7/16 or 1/2 inch bit.
A metal collection spout for each taphole.
A collection container (bucket or plastic bag) or tubing line for each taphole.
Metal trash can with plastic liners for sap storage.
A large pan and heat source for boiling down the sap. Size will depend on amount of sap involved.
A large scale thermometer calibrated at least 15 degrees above the boiling point of water.
Wool, orlon or other type filters for filtering finished syrup while hot.
Storage facilities and containers for the finished syrup.

Tapping the Tree

To obtain the earliest runs of sap, tapping should be completed by early March in central and southern Minnesota and by the first week in April in the northern portion of the state. The smallest trunk diameter for trees suitable for tapping is 8 to 10 inches at 2 to 4 feet above the ground.

To tap a tree, select a spot on the trunk of the tree about two to four feet above the ground in an area of the trunk which appears to contain sound wood. At this point, drill a hole approximately three inches deep into the wood. A collection spout is then inserted and tapped lightly into the tree, and a bucket or plastic bag, or a tubing line attached to the spout. If open buckets are used for sap collection, a cover should be installed to exclude rainwater and other debris.

Collecting the Sap

Sap flow from maple trees will not occur every day throughout the tapping season. Instead, it occurs on those days when a rapid warming trend in early to midmorning follows a cool (below freezing) night. Thus, the amount of sap produced on a given day varies. Normally, a single taphole produces from a quart to a gallon of sap per flow-period (ranges from few hours to a day or more) with a seasonal accumulation of 10 to 12 gallons likely.



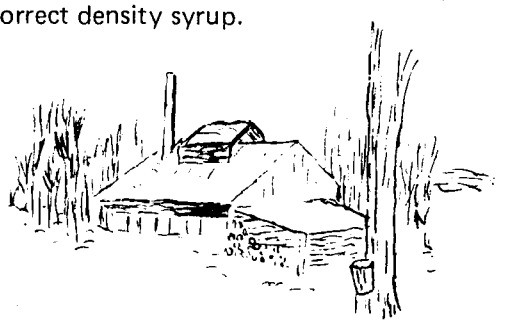
Sap should be collected and boiled down as soon as possible to produce high quality syrup. Where this is not always possible, collections during prolonged flow periods should be made as required, not exceeding every two or three days. During periods of rather low temperature and under favorable storage conditions, sap may be kept four or five days without reducing syrup quality.

Boiling the Sap (Making Syrup)

The amount of sap required to produce a gallon of maple syrup varies, depending on its sugar concentration. Sap averages approximately two percent sugar, at which concentration, 43 gallons of sap are required to produce one gallon of syrup. If the sap contains a higher sugar concentration, less sap will be required to make a gallon of syrup—and vice-versa.

The process of producing maple syrup is essentially one of concentrating the sugar solution to a predetermined level through the process of evaporation. Heat is used to concentrate the sap and to develop the characteristic maple color and flavor which gives maple syrup its highly desirable properties.

In large commercial operations a continuous feed evaporation process is used: the evaporation pan is arranged so that sap may be continuously added and drawn off. In smaller operations a "batch" approach is used. The evaporation pan is filled with sap and sap is added as necessary to replace that lost by evaporation. When a suitable amount of concentrated sap is present, the pan is "finished-off" to produce the correct density syrup.



To begin the evaporation process, fill the evaporating container (preferably a large shallow pan) with sap. Begin heating the sap to the boiling point, taking care not to burn or scorch the sap. A Teflon-coated pan is ideal. As the level of sap in the pan is lowered through evaporation, add more sap. This process is continued until most of the sap in the pan is highly concentrated, and the boiling point of the sap begins to rise above the boiling point of water.

Throughout this process, it may be necessary to occasionally skim the surface of the boiling liquid to remove surface foam and other materials. Finished syrup boils at seven degrees above the boiling point of water. As the temperature of the boiling sap approaches this point, boiling should be carefully controlled to prevent burning and overheating.

Once the desired boiling point has been reached, the syrup is ready for filtering and packaging. Syrup should then be filtered, while hot, through a suitable filter of wool or orlon. This will remove suspended particles, such as sugar sand, and improve the appearance of the syrup. After filtering, the syrup should be packaged while hot. A temperature of at least 180°F. is necessary to prevent spoiling while in storage.

Other Maple Products

Maple syrup may be used as is of course, or it may be converted into other highly desirable products. Maple sugar, maple candy, and maple fudge are just a few of the many other products which can be made. Basically, these are made by concentrating finished syrup to a greater density and stirring the highly concentrated syrup. Recipes for a variety of these maple products may be obtained at the local county extension office or by writing to the College of Forestry, University of Minnesota, St. Paul, MN 55108.

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