



## INFORMATION SHEET 27

### August 2016

# Making Maple Syrup for Fun and Profit

Maine Forest Service, DEPARTMENT OF Agriculture, Conservation and Forestry, 22 State House Station, Augusta, ME 04333

## Introduction

For New England's earliest settlers, maple sugar was often the most available sweetener. Although considered a myth, it is said that a Pilgrim breakfast sometimes included popcorn in milk sweetened with maple sugar. Today maple syrup and other maple products are used by people all over the world. Maple syrup production is a growing industry, but small woodlot owners can participate in this exciting activity and in the expanding maple syrup marketplace. If you have a dozen or more good size maple trees on your property, you may consider making syrup for fun and profit.

## Sugarbush Management Basics

Managing your woods for sap production should ideally start when the trees are young and vigorous—trees 15 to 25 feet tall. Although sugar maples are preferred for their higher sugar content and other favorable attributes, red maples can also be used for sap production. For personal use, twelve healthy trees will probably produce two plus gallons of syrup per year. To produce enough syrup to sell, you need at least one or two acres stocked with maple trees. A good target stocking for each acre is 50 to 75 healthy maples.

Healthy and vigorous trees with lots of foliage (or large, broad crowns) will yield the most and the sweetest sap. In a young hardwood stand, identify the



sugar maples with the largest crowns and with stems free from damage. These are the crop trees in your sugarbush. Then cut down the trees in close proximity to your crop trees. Your goal is to create three to six feet around each crop tree crown that is free of competing trees. The crowns of the remaining trees will expand over time to fill in the unoccupied space in the canopy. Therefore, you will need to repeat the tree removal procedure (called thinning) periodically over time. It makes sense to assess the need for additional thinning every six to twelve years. For help managing your sugarbush, consider hiring a licensed forester. The Stewardship Forester

List, found on the Maine Forest Service's website, is a good place to find professional help.



## Sap Collection

Sap runs in the spring when the night-time temperature is below freezing and the daytime temperature is above freezing. This is a very simplistic description of the conditions necessary for sap flow, because other weather related factors also play a big role. In Maine, the sugaring season typically starts in March and ends in April. The timing varies by region of the state and is dependent on weather conditions.



Figure 1: Tap for buckets (left) and tap for tubing (right)

It is important to install taps (figure 1) in your maple trees just prior to the onset of spring weather. This is often referred to as “tapping.” The proper time to tap varies greatly across the state. As a beginner, it is wise to consult local producers and find out when they install taps. Taps (or spiles) and buckets can be purchased from numerous maple suppliers that often maintain active websites. It’s best to use food grade buckets or buckets specifically made for the maple industry. Repurposing common containers for sap buckets can damage the maple industry’s image and lessen consumer confidence in your product. In other words, hanging kitty litter containers from your maple trees will send the wrong message to potential customers. Note - If your woodlot objectives include growing sugar maple trees for lumber or veneer, you should avoid tapping the highest quality trees.

To install taps, drill holes 1.5 inches into the tree at chest height. Make sure the hole is round and not oblong for a good seal. It should also be free of debris. Then gently hammer the tap into the hole until it is snug and cannot be easily removed by hand. Keep in mind that the spiles need to be removed at the end of the sugaring season. Your buckets, hopefully with covers, will hang from the tap to collect sap. The sap will need to be collected daily and stored in a larger container near the place you are boiling. You should use a food grade container with a capacity of 2 gallons per tap. The size will need to be adjusted based on a number of factors—most importantly is the rate at which you can boil sap and produce syrup. Keeping the sap cool or boiling it soon after collection is critical to prevent microbial growth. Microbes will ruin your syrup. The amount of sap required to make a gallon of syrup depends on the sugar content of the sap. If boiling sap with 2% sugar



content, it will take 42 gallons to make one gallon of syrup. As a rule of thumb, an average sugar maple will yield one quart of syrup per year.

### **The Basics of Boiling Sap and Producing Syrup**

Before you start to boil sap into maple syrup, you need to consider your fuel source. If you plan to boil over a fire, make certain that you have a good supply of seasoned firewood. Plan to use at least one cord of firewood for each 100 taps. This is a good starting point. You will also need at least one large kettle or a large flat pan. A flat pan has more surface area, and evaporation will be quicker than with a kettle. These types of pans can be fabricated by a metal shop or they can be purchased from maple distributors online.



When you start to boil, fill the kettle or pan with raw sap, but not all the way to the top. Leave some room to help prevent the sap from boiling over. It is a good idea to have some margarine or maple de-foamer on hand in the event of significant foaming. As the sap boils down, gradually add more raw sap. Try your best to maintain the boil and always keep at least 2 inches of sap in the bottom of the pan. You do not want to burn your pan. Once the sap has boiled down and turned a golden color, you can finish boiling in a smaller pot on a camp stove.



When the sap reaches a temperature 7° F above the boiling point of water, you have syrup. However, the best way to test syrup is to measure the sugar concentration with an instrument called a hydrometer. The elevated boiling point of syrup

over raw sap is caused by the greater concentration of sugar in syrup. Finished syrup should have a sugar content of approximately 66%. For more information on the sugar concentration in syrup, you should research the Brix scale. Once you get a taste of making maple syrup, you may decide to invest in an evaporator (figure 2), sold by many maple equipment dealers. These are state of the art pieces of equipment and will cost at least \$1,000. --- more if purchased new.

After you have produced syrup, it needs to be filtered to remove sugar sand or sediment. Do this prior to bottling. An economical method is to use filter sheets draped over a clean pot. Make sure there is a bowl shaped depression in the filter sheet covering the pot. Maple equipment dealers usually offer several types of filters and filter sheets. Before the first use, you may need to rinse your filters in hot water. Consult the manufacturer's directions for details. When bottling syrup, re-heat it to 180 to 185 F to prevent contamination by microbes. This is called "hot packing."

## Selling Syrup and Maple Products



If you plan to sell syrup, it is important to understand a few requirements. In Maine, you need a license from the Department of Agriculture, Conservation, and Forestry to produce and sell maple products.

Understanding how to grade and properly label syrup is an important part of being a maple producer. The grade of maple syrup takes into account the color, density (or sugar content), clarity, and taste of the

finished product. Maple grading kits are available from many maple suppliers, but be aware that they may need to be replaced periodically. The last bit of advice pertains to cleanliness. Make sure that you clean your maple equipment with hot water before and after every sugaring season. As mentioned earlier, microbes can degrade or ruin maple syrup. Don't forget to have fun making maple syrup and consider this hobby as a possible source of supplemental income. Before you make syrup for the first time, think about visiting a local sugarhouse on Maine Maple Sunday. A list of participating sugarhouses is available on the Maine Maple Producers Association website at [www.mainemapleproducers.com](http://www.mainemapleproducers.com).



## Additional Information

1. Maine Maple Producers Association at [www.mainemapleproducers.com](http://www.mainemapleproducers.com)
2. University of Maine Cooperative Extension at [www.extension.umaine.edu](http://www.extension.umaine.edu)
3. Maine Department of Agriculture, Conservation, and Forestry at <http://www.maine.gov/dacf/index.shtml>
4. Maine Forest Service at [www.maineforestservice.gov](http://www.maineforestservice.gov)
5. North American Maple Syrup Producers Manual from Ohio State University at [www.osu.edu](http://www.osu.edu)

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