

# EXTENSION NOTES



## BACKYARD MAPLE SYRUP PRODUCTION

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With only a few maple trees and a basic understanding of how to collect and boil sap, landowners can produce their own high quality maple syrup. The equipment needed is easily purchased and some may already be in your kitchen.

This Extension Note provides basic information about producing maple syrup in your own backyard.



## WHAT IS MAPLE SYRUP?

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Maple syrup is produced from the boiled sap of sugar, black, red and silver maple trees. Sap collected from maple trees is 95 per cent water. The remaining five per cent is a combination of sugars, minerals and amino acids. Maple syrup is produced by boiling the sap to remove the excess water.

### GO WITH THE FLOW

Maple sap begins to flow in March. Warm days (two to seven degrees Celsius) and cool nights (minus four to

minus six degrees Celsius) usually produce the highest rates of flow. The best maple sap, which has the highest sugar content, is usually found early in the season. Healthy trees with large crowns are the best producers.

When maple buds begin to swell, it's time to stop collecting sap. Although the sap may still be flowing at this time, it makes poor quality syrup.

## WHAT YOU'LL NEED TO GET STARTED

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Before the season begins, make sure your equipment is clean and in working order.

You'll need:

- a 1.1 centimetre ( $\frac{7}{16}$  inch) wood bit and a brace or drill
- spiles with hooks for hanging buckets
- small buckets with lids for collecting sap
- one large bucket for carrying sap (a 16-litre plastic bucket is a good choice)
- a large pot or pan for boiling the sap
- cotton and felt for filtering sap and syrup
- canning jars or bottles for storing syrup
- a cooking thermometer with an easy-to-read scale that extends several degrees past the boiling temperature of water. It is important that your thermometer reads in single degrees (Fahrenheit or Celsius).

Other kitchen utensils such as sieves, slotted spoons and oven mitts will come in handy when you're ready to make maple syrup.

Most of the equipment you'll need can be found at a farm supply, hardware store or maple syrup equipment dealer. Keep in mind that all the equipment must be food-grade quality. In some cases, food-grade buckets and lids can be obtained from bulk food stores or bakeries at little or no cost.

A large pan with 15-centimetre-high sides works well for boiling, but any large pot or pan will do.

All equipment should be cleaned before it is used. A cleaning solution of one part bleach and 19 parts water is an effective cleanser. After cleaning, rinse all equipment with hot water and dry thoroughly.



## FROM SAP TO SYRUP

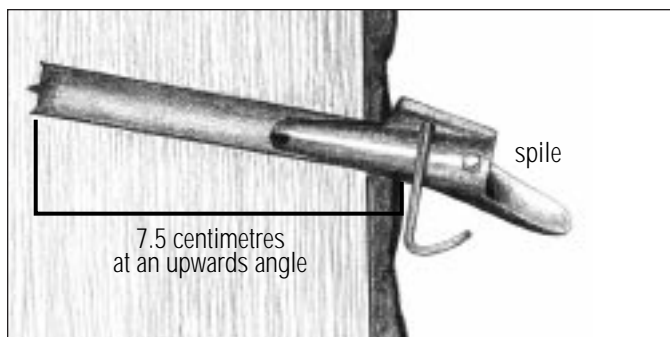
### TAPPING

To figure out how many tap holes to drill into each tree, you'll need to do some simple arithmetic. At about 1.4 metres from the ground, measure the tree's diameter with calipers or a special "diameter tape." Now, compare this measurement with the following chart.

#### TAP HOLE GUIDE

Trees less than 25 centimetres in diameter	.....0 tap holes
Trees 25 to 35 centimetres in diameter	.....1 tap hole
Trees 38 to 49 centimetres in diameter	.....2 tap holes
Trees 50 to 60 centimetres in diameter	.....3 tap holes
Trees over 63 centimetres in diameter	.....4 tap holes

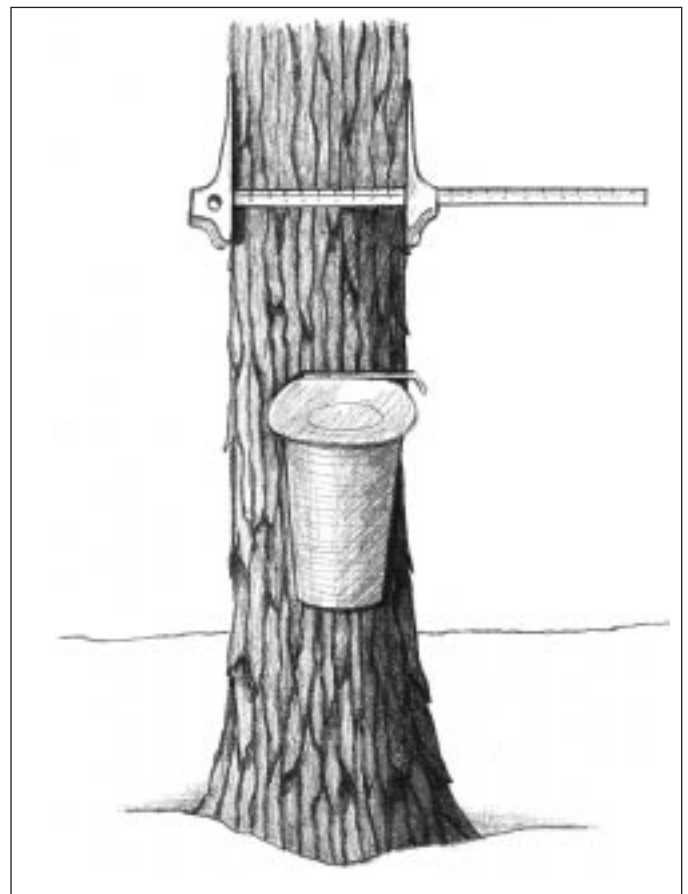
Tap holes should be drilled into the tree's white-colored sapwood on an upward angle to a depth of 7.5 centimetres. Do not tap sapwood that is brown, as it may contain material that can give syrup an odd flavor. Avoid drilling when the temperature is below minus 3.8 degrees Celsius. Drilling a frozen tree is hard on the drill bit and the tree.



Two or more tap holes should be placed in a spiral pattern. New tap holes should be spaced at least 15 centimetres apart (measured horizontally) from old tap holes. Spiles should be tapped gently into the tree. If the spiles are tapped with too much force they can split the bark, cause sap leakage and injure the tree. Spiles tapped in too deeply can also be damaged and may be difficult to remove at the end of the season.

### COLLECTING SAP

To collect the sap, hang the small buckets on the spiles. Be sure to place lids on the buckets to keep out rain, bark and insects. Sap must be removed from the buckets at least once a day so that it doesn't spoil or freeze



overnight and split the bucket. Spoiled sap has a cloudy or yellow appearance. If the sap does become spoiled, it should be thrown away.

To avoid spoilage, store sap in a freezer. Freezing sap is ideal for backyard maple syrup producers because it allows them to collect small quantities of sap every day until there is enough for boiling.

Before boiling or storing, filter the sap through a clean and well rinsed piece of cotton (a pillow case works well) to remove any debris.

### BOILING

Sap can be boiled indoors or outdoors. However, for every litre of syrup produced, 30 to 40 litres of moisture must be boiled off. This amount of steam can cause condensation problems indoors. If you're going to boil sap indoors, the cooking area should be well ventilated.

If you intend to boil the sap outdoors, check local bylaws first for any restrictions. When boiling sap outdoors, make sure pots are well supported and that all other combustible



material is well away from the fire. You'll also need a good supply of dry wood. Cedar, pine and balsam are good choices because they burn hot and quickly, allowing you to control the rate of boiling. You can also use a gas barbecue.

Watch the sap closely, making sure that your pan does not boil dry. When adding sap, try not to let the boiling slow. As the sap becomes more concentrated it will foam and threaten to boil over the top of the pot. A drop of vegetable oil or milk will lessen the foaming. Scum will also form on the foam. This can be skimmed off with a sieve or slotted spoon.

To prevent scorching, always have at least 2.5 centimetres of sap in the pan. As you boil, keep adding more sap to maintain this level. If you are boiling the sap on an outdoor fire, you may want to move it to an indoor stove for the final stages. In a large outdoor pan, you may not have enough syrup to maintain the depth needed to prevent scorching.

Boil the sap until it has a sugar content of 66 per cent. At this sugar density, it boils at four degrees Celsius above the boiling point of water, which is about 100 degrees Celsius (but varies with air pressure).

Use a cooking thermometer to determine when the sap has reached a sugar density of 66 per cent. To compensate for the effect of changes in air pressure, calibrate your thermometer every day. This is done by placing it in gently boiling water and recording the temperature. The boiling point of syrup that has a sugar content of 66 per cent will be four degrees Celsius above that temperature.

The sugar content of the syrup is an important factor in your ability to preserve it for future use. Maple syrup with a lower sugar content can spoil. Syrup with a higher content can crystallize.



#### FILTERING AND BOTTLING

Maple syrup should be filtered before it is bottled. Orlon or felt make good filters. Filters should be cleaned with hot water only (no detergent) and dried thoroughly before and after each use. New filters must be washed before use.

Bottles or jars used to store syrup should also be cleaned and rinsed prior to bottling. Heat the syrup to a temperature between 82 and 88 degrees Celsius before pouring it into the jars or bottles. The hot syrup will help to sterilize the jars. Place the jars or bottles on their sides to sterilize the lids.



#### CLEANING UP

Remove all the spiles, buckets and lids from the maple trees when the season is over. Tap holes will heal naturally over time. The spiles, buckets and lids should be scrubbed thoroughly with a bleach solution (one part bleach to 19 parts water) and rinsed with hot water.

Producing maple syrup in your own backyard can be a rewarding experience for you and your family. It takes work and dedication to produce syrup, but the end product is well worth the effort.

For more information about making maple syrup, contact the Ontario Maple Syrup Producers Association, the Ministry of Agriculture, Food and Rural Affairs or your local conservation authority

