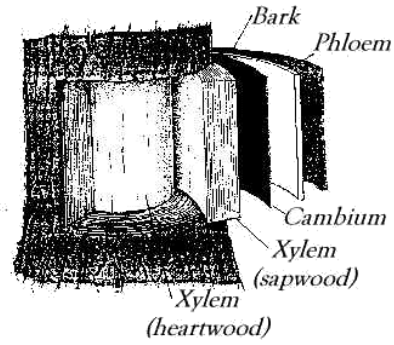
HOMEMADE *WESTERN* MAPLE SYRUP



Bigleaf Maple (*Acer macrophyllum)* is the largest and most common maple on Vancouver Island. It is a hardy tree and can be difficult to kill should one be growing in an undesirable location. The tree creates sugar through its leaves using photosynthesis and stores that sugar in its roots. The sugar is used to grow buds, new leaves, branches, and additional sapwood plus to heal wounds. Sapwood is the outside wood of the tree and is used as the conduit for moving sap.

Maple sap

Tapping can be done once the leaves are off the tree and until buds are about to open (November through early March). Sap flows are normally sweetest in January and February. On the West Coast, sap often flows a day before or after a weather change. Back East, cold nights followed by warm afternoons give the best flow. Our western sap ranges from 1% – 4% sugar, whereas the eastern sugar maples give twice that content. Sugar content can be measured with a hydrometer ($7) or brix refractometer ($80 – $200).

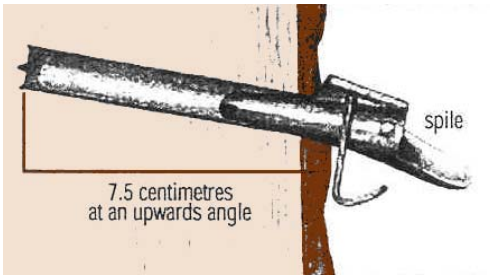
Choosing which trees to tap

Look for trees with a wide-open crown. Trunk diameter should be between 4" & 18" and the bark should be somewhat smooth. Back East they also want a trunk that receives direct sunlight to unfreeze the sap within the tree. Although large diameter trees are desirable in the East, here in the West large old gnarled "hobbit" maples seldom give much sap unless you can tap a sucker stem. When a maple tree is cut down, it will send up many new shoots (coppices) from the stump. These work well for taping as they have a large established root system and you can use a big bucket to collect from several stems.

How to tap

Taps are called spiles. Most commercial spiles are designed for a 7/16" hole. Ideally you want to tap at a convenient height. Some folks recommend that you tap on the sunny side and directly under a large branch. Others say to work around the tree and slightly higher with each new hole (assuming you tap the same tree year after year). The hole is drilled 2" – 2 ½" deep at a slight upward angle. If you drill too deep you may hit heartwood and decay.

Drilling the hole wounds the tree and the tree sends sap to heal the wound. You may find that your holes will dry up before you want them too. One solution is to start with a 3/8" diameter hole and ream it out every month with a larger bit until it is 1/2" diameter. Another solution is to drill a new hole nearby. Holes will completely fill up with wood amazingly fast once the spile is removed.



When drilling the hole you should use a twist bit as opposed to a flat (speed) bit. A flat bit can clog the "vessels" of the hole, reducing sap flow. Once the hole is drilled, tap the spile in place gently with a hammer to prevent leakage. Some spiles have a small hole that can clog up and stop the flow. You may want to pull a spile after several weeks and make sure wood or sugar isn't plugging up the spile.

Sap collection and handling

Four-litre plastic milk jugs work well for sap collection. Cut a hole where they start to taper for the neck and slip the jug over the spile. For highly productive trees or multiple stems, connecting the spiles with tubing to a bucket works well. Your collection system should prevent rainwater and insects from mixing with the sap. 16-litre cooking oil buckets (available free from restaurants) work well for collection and handling.

Collect sap at least every three days. Most of the "run" occurs during the warmest part of the day, although trees may flow all night long. Store sap in a cool place. As sap contains sugar, it can breed bacteria and sour. Ideally you should boil down every few days.

Sap usage

Sap (a.k.a. maple water) can be used raw in place of water for cooking and for beverages. It contains amino acids and many trace minerals. Using sap in place of water for tea, coffee, cooking rice, soup, stew, bread, etc. will give pleasant results. You may even forget about making syrup. Unfortunately sap is only available for four months, so making syrup is a great way to condense and preserve this wonderful product for the other eight months of the year.

Making syrup, the boil-down

Sap is about 90% water, and boiling causes evaporation, which reduces it to syrup. At 2% sugar it will take about 33 litres of sap to make one litre of syrup. If boil-down is done indoors, you will have 32 litres of steam to deal with. Using propane or wood heat outdoors is preferred. Stainless steel or cast iron flat bottom pans or large diameter kettles are best. Sap is considered syrup at 66.5% sugar.

1. Fill pan with sap and heat to a rolling boil (some people strain the sap first)
2. Skim off foam if present
3. Add additional sap as level drops (add warmed sap slowly in order not to kill the boil)
4. Taste occasionally for sweetness. Sap can burn easily when it is close to being done, so when it tastes quite sweet, bring the pan indoors to finish carefully on the stove
5. You can judge doneness by taste alone or by measuring temperature. Boil some water and measure the boiling temperature with a candy thermometer. Water turns to a gas at boiling so you can only get it so hot. Water's boiling temperature changes daily with atmospherics conditions. Your sap will be 66.7% sugar once its boiling temperature reaches 7% higher than the temperature of boiling water.

CAUTION: Your sap/syrup will be a very hot liquid, so be careful!! Things move fast at the end and many people accidentally burn and ruin all their hard work. It's best to finish off a large quantity of syrup rather than a small one. It is recommended if necessary to store up small quantities of partly reduced sap (approx. 50% sugar) until you have enough to do a larger batch.

Preserving and storing

Strain the hot finished syrup through a felt or milk filter to remove the "sugar sand" (coffee filters will work, but not well). This sand can also be settled out in the jars. The sap can then be poured into hot sterile jars and sealed or frozen. The sugar content preserves the sap. If the sugar content is too low, the syrup may spoil. Syrup that grows mold can be filtered and re-boiled with no damage to the flavour.

Bigleaf maple syrup

Our western maple syrup has more flavour that its eastern cousin. While good on pancakes, it excels for use in cooking baked beans, many deserts and as a glaze for carrots, ham and ribs.

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http://www.srs.fs.usda.gov/pubs/viewpub.jsp?index=3032
(1970 – 1971 Oregon Bigleaf Maple study into harvesting sap for syrup)

http://ohioline.osu.edu/b856/b856_9.html
(Excellent manual on sap and syrup production for eastern Sugar Maple)

http://forestry.about.com/library/silvics/blsilacemac.htm
(Silviculture)

http://www.atkinsonmaple.com
(Great Canadian source for sap and syrup supplies)

http://infobasket.gov.bc.ca/
(Good source for agroforestry information

Largest Bigleaf Maple found: 101' height, 90' spread, 419" circumference
approximately 11' diameter, located near Clatsop, Oregon