USER GUIDE FOR MAPLE SUGARING KIT

MAKE YOUR OWN MAPLE SYRUP

10-TAP SUGARING KIT

6 EASY STEPS
6 ÉTAPES FACILES

1. Tap the trees.
   Entablir les rameaux.

2. Install the spout.
   Installer le robinet.

3. Hang the buckets.
   Accrocher les seaux.

4. Harvest the maple sap.
   Récupérer la sucre d’érable.

5. Roll the snow into snowballs.
   Rouler la neige en boules.

6. Enjoy your syrup!
   Vous pouvez vous savourer votre sirop!
Background
The basic process of converting maple sap to syrup still requires the removal of water from
the raw sap to form the finished sweet product. Most novice producers find the experience
of producing maple syrup rewarding far beyond the sweet product of their labor. After a few
years of experience, many beginners develop a level of enthusiasm that advances them to
commercial-size maple production.

This manual provides instruction for those producing maple syrup for the first time,
primarily for home or family use.

With a kit like this, you will be able to produce about 1 liter of syrup for 10 buckets of sap.
In the season, it’s possible to collect between 20 to 30 buckets, 2-3 liters per season.

Remember, although you may want to innovate to minimize production costs, maple syrup is
a food product and should be produced only with equipment and materials that are approved
for food application.

Maple species to tap
Although several types of maples grow in Northeast America, sugar maple (Acer saccharum)
is the traditional species tapped for maple syrup production. The sap of the sugar maple
generally contains a higher level of sugar than the other maples. Identify sugar maple by its
bark, its dark, brownish-color, sharp buds, and its five-lobed leaves.
It is quite easy to recognize sugar maple tree in summer, but harder in winter. When possible, we recommend you identify trees during summer. If you cannot, refer to the following instructions:

1. NO THORNS
2. HAS OPPOSITE BUDS THAT DO NOT ALTERNATE.
3. “SCALE” BUDS HAVING MORE THAN 2 SCALES.
4. END BUD IS SMALLER THAN 2.5CM, 1”.
5. HAVE A FOLIAR SCAR (WHERE A LEAVE WAS ATTACHED) TIGHT SCAR, NOT IN V OR U SHAPE.
Equipment:
The followings are included in the 10 taps maple sugaring kit:

- Drill bit 5/16 (1)
- Tree saver spout (10)
- Sap bucket - (10)
- Sap bucket cover (10)
- Food grade syrup filter (1)
- Syrup thermometer (1)
- Glass bottles (3)
What you will need but is not included:

- A drill for tapping.
- A tank to accumulate sap. It is recommended to have a tank big enough where you will be able to pour the contents of your buckets. You can then transfer sap in the cooking tank (note your tank can be used for both, as a "reservoir" and for boiling.
- A small rubber hammer.
- A cooking pot (aluminum or stainless steel) and a heat source.
- Another pot to transfer the finished syrup in.

**NOT INCLUDED:**
Drill, cooking pot & heating source
1. Tap the tree

Tap maple trees in early spring when daytime temperatures go above freezing while nighttime temperatures fall below freezing. The exact time depends on the elevation and location of your trees and your region. In most southern regions, first sap flow traditionally takes place in mid to late-February. In northern regions and at higher elevations, the season often begins in early to mid-March. Sap usually flows for 4 to 6 weeks or as long as the freezing nights and warm days continue.

The minimum suggested tree diameter for tapping is 10 inches in diameter. A quick and easy way to determine the diameter of the tree is by using a household measuring tape. This will give the circumference of the tree, which can be converted to diameter from Table 1.

<table>
<thead>
<tr>
<th>Diameter (inches)</th>
<th>Circumference (inches)</th>
<th>Number of taps</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-17</td>
<td>31-53</td>
<td>1</td>
</tr>
<tr>
<td>18-24</td>
<td>57-75</td>
<td>2</td>
</tr>
<tr>
<td>&gt;25</td>
<td>79</td>
<td>3</td>
</tr>
</tbody>
</table>
2. Install the spout.

After drilling taps, ensure the holes are free of shavings, insert the spout and seat it; gently hit the flat part of the spout with a rubber hammer.

Flat part

Tap, do not pound, the spout in the taphole. Seat the spout properly so it can support the bucket. Forcing insertion can split the bark delaying taphole closure and causing a substantial wound on the tree for many years. Do not treat the taphole with disinfectants or other materials at the time of tapping.

After removing spouts from the tapholes at the end of the maple season, do not plug the taphole. Tapping done properly will allow tapholes to close naturally (covered by bark) in about two years and will allow the tree to remain healthy and productive for generations.
3. Hang the bucket.

Hang the bucket on the spout hook.

When the bucket is in place, you must install the protective cover. To do so, remove the metal rod, insert it in the spout. See picture below:
4. Harvest the maple sap.

The volume of sap collected per tap during a flow period will vary from less than a quart to several gallons, depending on the tree, weather conditions, and duration of the flow or run. The sugar content of sap varies between trees, it will fluctuate within the season, and from year to year.

Collect sap daily if possible. It can be filtered through a clean cloth or paper filter to remove debris if desired. Sap can temporary be stored in a big and clean alimentary tank for more convenient processing. The storage container should be placed in the shade to keep the sap as fresh and cool as possible. Because sap is a mixture of sugar and water, it is a perfect medium for bacterial growth. Therefore, it should be collected and processed as quickly as possible to ensure a higher quality product.

Shelf life of sap will vary and is dependent on many factors: outdoor temperature, bacterial contamination, sun exposure, and SAP quality. It can be stored between 1 and 10 days in the bucket. If sap is having a whitish-color, sap is contaminated, and you should dispose of it (if you make syrup the taste will be unpleasant). To clean all sap collection equipment, do a mixture of one-part odorless bleach for 20 parts clean water, use a clean cloth or brush.

5. Boil the sap.

Usually about 40 gallons of sap are required to produce one gallon of finished syrup. This figure can vary from 20 to 60 gallons or more depending primarily on sap sugar content. A large amount of water must be evaporated from the sap to obtain a finished syrup containing 66% of sugar (66 Brix°). Because the large amount of steam caused by evaporation of the sap could be damaging to interior wall surfaces, the bulk of the boiling should be done outside of the home. However, this can be done inside the house if you have a good kitchen hood (steam will not damage the hood).

We recommend that you use a pot above an open fire, camping stove or a wood or propane fireplace. Before turning on your heat source, fill your pot with about 3-4 inches of sap. Throughout the boiling process, ensure the liquid level is sufficient (about 1”1/2) so that the sap will not burn and will not damage the pan. As the evaporation progresses and the sap level decreases, add sap. The faster it boils, the greater the potential for producing a high-quality product. This "batch" method allows the sap to be processed to a point near the final stage of evaporation.
Sap becomes syrup (66 Brix°) at approximately 7°F above the boiling point of water. Water boils at 212°F, proper density for syrup would be slightly over 219°F. Concentrations below 66% sugar content can sour over time. If boiled above the 67% density of syrup, sugar crystals can form in the bottom of storage containers. The boiling point of water, which varies with elevation and daily changes in barometric pressure, is easily determined by noting the temperature in the raw sap when it is boiling vigorously.

Throughout the process, excess foam may be skimmed off the surface of the boiling sap and discarded. Butter or vegetable oil can be used to reduce foaming. When used in small quantities, defoamers will evaporate without a noticeable trace in the syrup.

You can clean your sap boiling equipment with hot water.

Making maple taffy: If you want to make maple taffy, increase the temperature to 238°F and follow the previous steps. Then do a test on snow: if consistency is too hard, add a little water; if it's too liquid, boil a little again.

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6. Enjoy your maple syrup.

Filtering
When syrup has reached its proper temperature and density, it should be filtered to remove a gritty material called "sugar sand" or "niter" before hot packing in containers. Syrup must be filtered through a clean food grade syrup filter. Install the syrup filter on a suitable sized pot. Use the pins provided for this purpose (see picture below):
BE CAREFUL NOT TO BURN YOURSELF, USE GLOVES!

Syrup should be canned hot (180°F) and stored in a cool dry location or under refrigeration. After a container has been opened for use, it must be refrigerated.

Use only hot water when cleaning your sap and syrup filter. At the end of the season after cleaning in the manner described above, store equipment and supplies in a dry place.

Conclusion
We hope you enjoy making maple syrup! Please feel free to contact your H2O Innovation dealer or our head office in Ham-Nord, Qc at (819) 344-2288 or at erabliere@h2oinnovation.com or visit our website www.h2oinnovation.net.