

## Gathering Summary: Sugar Tapping by Kathie Lapcevic , October 19, 2011

Summary by Catherine Haug

(photo, right, of collecting sap in jug, by Kathie Lapcevic)



### Introduction

#### Flathead Food Swappers

Kathie opened with an invitation to the first Flathead Food Swappers' meet in Whitefish (see the [Event Notice: Flathead Food Swap, Nov. 9, 2011](#); see also earlier post about this new community group: [Food Swapping in the Flathead](#)).

#### Sugar Tapping

You can tap the sweet sap of maple and birch trees in February - March, then boil it down to syrup or sugar. If you do it right, you will not harm the tree and can tap the same tree year after year.

Kathie has three silver maples that she has been tapping for several years; this last year they produced 3 quarts of 'fancy' grade maple syrup. Mmm...

#### Sugar Tapping Handout

[Maple & Birch Tapping at Home](#), by Kathie Lapcevic (printable pdf)

### The Trees

Both maple and birch trees can be tapped - it doesn't have to be sugar maple (see below). In general, maples give more syrup than birch.

#### Maple

[Note: In addition to providing sugar, "maples are a major source of pollen in early spring before many other plants have flowered. Thus maples are important to the survival of honeybees that play a commercially important role later in the spring and summer." (1)]

**Sugar maples** (*Acer saccharum*) are native to the eastern US and Canada, but not to our area. However, they may grow here. They produce the most syrup of any maple.

[NOTE: sugar maple is often confused with **Norway maple** (*Acer plantanoides*), which is native to Europe. Because of its growth habit, it is considered an invasive species in some regions of the US, primarily those where sugar maples are native, because the Norway maple discourages growth of the sugar maple.]

**Silver maples** (*Acer saccharinum*) are native only to eastern US and Canada, but grow well here. Kathie's silver maples produce about 1 quart of syrup per tree per year.

[**Boxelder maples** (*Acer negundo*), native to eastern Montana, are an excellent candidate for sugar tapping, and were routinely tapped by native Americans prior to the invasion of white settlers who introduced them to cane sugar.]

**Rocky Mountain maples** (aka dwarf maple; *Acer glabrum*) are native to Montana and most of the Rocky Mountain region). They are not good candidates for tapping because of their shrubby habit - their trunks do not get big enough to survive the setting of a tap.

## Birch

**White birch** (aka paper birch; *Betula papyrifera*) is native to our area and can be tapped for sugar; however, its yield is less than that of silver maples. It is vulnerable to bronze birch borer beetle that is killing off many of our lovely white birch. For this reason, it is a good idea to cultivate this native tree, and care for it properly (see [Birch Tree Care](#) for more (2)).

[**Red birch** (aka water birch; *Betula occidentalis*) is also native to our area, but like the Rocky Mountain maple, it has a shrubby habit and is not a good candidate for tapping.]

## Selecting a tree for tapping

Select a healthy tree that is at least 10 inches in diameter [Rocky Mountain maple and red birch never get this large; tapping too-small trunks can damage the tree]:

- 10" - 20" diameter: use 1 tap per tree
- 20" - 25" diameter: use 1 or 2 taps per tree
- greater than 25" diameter: use 1 to 3 taps per tree

## Tapping the Tree

### When to tap

Timing is very important, as tapping at the wrong time can damage the tree and will not yield as much sugar. Tap in winter when daytime temperatures are in the 40s (F) and nighttime temperatures are in the 20s (F). February or early March is the best time here.

Pay attention to the weather and don't tap after the trees start to bud out.



### How to tap

(photo, left, of commercial aluminum tap, by Edd Blackler)

You will need a 3/8" drill bit if you plan to use a commercial aluminum tap, such as those Kathie uses (photo, left). Hers were purchased on e-bay, but there may be local stores that carry them.

1. Drill a hole 3 feet above ground level (not snow level), and about 2 1/2 inches into the tree at an upward angle (about 45°). Don't ream it out - just go in and out. If you ream it, the sap will run down the outside of the tap rather than out the spout.

## Sugar tapping

2. Insert the tap into the hole then tap it in with a rubber mallet until firmly set. Do not tap on the spout but rather on the top (above the spout) to avoid damaging the spout. Next year, drill a new hole at least 6" away from the previous year's hole. Kathie just drills on the opposite side of the tree each year (the old hole will be completely healed in 2 years).

The photos, below (*by Kathie Lapcevic*), show how the tap hole heals with time:



[Other tools and taps can also be used; for example, a knife to cut the insertion for a twig as in the 7-minute YouTube video [Tapping Birch Trees in March for Birch Sap - Clean Water](#) by Natural Bushcraft)]

### Collect the sap

(photo, right, of jug hanging from wire hook on tap, by Edd Blackler)

1. Attach the sap collector. You can use a pail, but Kathie repurposes a plastic gallon white vinegar jug.

She cut a hole at the top of the handle where the sap can enter, and another, smaller, hole a bit down the handle where the tap's hook attaches, as in the photo, right. This positioning of the holes allows the tap's spout to meet the entry hole. Note that the top of the jug is covered to keep bugs out.



The sap is very watery and slightly sweet.

2. Empty the collector daily into a container kept in the refrigerator.

Kathie can get 1 gallon sap per day per tree, and a total of 1 quart syrup per tree; but this varies each year.

Note that different types of trees give differing amounts of sap, and different amounts of sugar in the sap:

- 1 gallon of sap from Kathie's silver maples gives 1/2 pint of syrup (ratio of 16:1);
- Sugar maples give about twice that much (ratio about 8:1)
- Birch give much less, at a ratio of 99:1.

3. Pull the tap when sap stops running or starts to turn green, or when leaf buds start to form on the tree.

**Q: How long do you leave the tap in the tree?**

**A:** Until its done, 2 - 3 weeks

**Q: How often do you change the bucket?**

**A:** Daily, and add its contents to a container you keep in the fridge until you're done.

**Q: Do you have problems with squirrels?**

**A:** Kathie had not had this problem, but she does strain out bugs.

**Q: What about sunlight - does it break down sugar?**

**A:** Heat from the sun won't be a problem because you'll boil it down. UV in the sunlight may be an issue.

## Cooking down

1. Pour all the sap you've collected into a heavy bottom pot (so it doesn't scorch).
2. Place pot over heat. You can do this inside or out, but note that your kitchen will get quite hot and humid, as a lot of water vapor is released.
3. Let all the water boil off, then continue to cook until the temperature is **7° F above boiling point of water at your altitude**, to make it shelf stable (you may need to adjust the heat level as it cooks). If you heat it above this temperature, you will get sugar instead of syrup.

Note that the boiling temperature varies with altitude, so check for your home.

[Here's a handy online calculator: [Water Altitude Boiling Point Calculator](#):

- enter your altitude near the top,
- click "calculate" and
- read the boiling temperature below.

For example, my house is at 2900'; the calculated boiling point is 207° F. Thus at my house I would heat the sap to  $207^{\circ} + 7^{\circ} = 214^{\circ}$  F (not 217° F as at sea level).]

Alternately, you can use the 'spoon test' as for jelly-making, to determine when it has reached the desired temperature: when the sap sheets off the spoon, it is time.

4. Remove pot from heat.

**Q: How long does it take to cook it down?**

**A:** 2 - 3 hours.

## Pouring off

1. Line a sieve with cheesecloth and pour the syrup through this filter into a sterile jar.
2. Screw on hot sterile lid, then turn the jar upside down to seal (this is the old 'Open Kettle' canning method for jelly).

Kathie brought a small sample of her maple syrup. It is light in color and is considered to be a 'fancy' grade.

Birch syrup gets thicker and darker, like molasses, and is more bitter than maple.

## Storage

Properly cooked syrup (to 7° F above boiling, or per the spoon test described above) is shelf stable and does not need refrigeration after sealing. After you break the seal, it is best to keep it refrigerated.

If you don't cook the sap to 7° F above boiling, you will need to refrigerate your syrup to prevent the growth of mold.

## For More Information

### Kathie recommends the following books:

- *The Backyard Homestead*, edited by Carleen Madigan (see [Amazon](#) for a peek inside)
- *Encyclopedia of Country Living*, by Carla Emry (see [Amazon](#) for a peek inside)

### Kathie's Handout

- [Maple & Birch Tapping at Home](#), by Kathie Lapcevic

## Resources & References

1. [en.wikipedia.org/wiki/Maple](http://en.wikipedia.org/wiki/Maple)
2. [Birch Tree Care \(www.birch-tree.com/5-birch-tree.htm\)](http://www.birch-tree.com/5-birch-tree.htm)
3. [Tapping Birch Trees in March for Birch Sap – Clean Water \(www.youtube.com/watch?v=2RuLIECSPfM\)](http://www.youtube.com/watch?v=2RuLIECSPfM)
4. [Sugar Tapping and Making Maple Syrup](http://biology.clc.uc.edu/fankhauser/Buds_and_Bark/tapping_sugar_maple_index.html) by Dr. Fankhauser, PhD.  
([biology.clc.uc.edu/fankhauser/Buds\\_and\\_Bark/tapping\\_sugar\\_maple\\_index.html](http://biology.clc.uc.edu/fankhauser/Buds_and_Bark/tapping_sugar_maple_index.html))
5. [Hobby Maple Syrup Production](http://ohioline.osu.edu/for-fact/0036.html) by Randall B. Heiligmann  
([ohioline.osu.edu/for-fact/0036.html](http://ohioline.osu.edu/for-fact/0036.html))
6. [Tap My Trees \(www.tapmytrees.com\)](http://www.tapmytrees.com)
7. [Natural Pathways: How to tap a birch tree](http://naturalpathways.wordpress.com/2010/03/08/how-to-tap-a-birch-tree)  
([naturalpathways.wordpress.com/2010/03/08/how-to-tap-a-birch-tree](http://naturalpathways.wordpress.com/2010/03/08/how-to-tap-a-birch-tree))