



Timberland Management: Preservation of Standing Maples

**Dale Forrester
Maple Dale Farms
Atlanta, MI**

Definitions

- **Maple Sap:** The fluid that runs through the vascular system of a maple tree.
 - Average content is 2% sugar and 98% water.
- **Maple Syrup:** syrup is made by concentrating the sap of maple trees, especially the sugar maple.
 - This is done by boiling the sap, which evaporates excess water and caramelizes the sugars.
 - Sap from the maple tree is the only ingredient.
 - 66.6% sugar
- **Sugarbush:** a woods in which sugar maples predominate
- **Maple Syrup Producer:** typically, a person who owns a sugarhouse, harvests sap, and processes it from start to finish

Basic FAQs

- How much sap does it take to make one gallon of syrup?
 - 86/sugar content of sap
 - My woods averages 1.5% sugar. $86/1.5 = 57.3$ gallons of sap for 1 gallon of syrup
- How much is syrup worth? Depends how you sell it:
 - **Retail:** bottled and sold individually
 - Stores
 - Farmer markets
 - **Wholesale:** bottled and sold by the case
 - **Bulk:** sold by the pound
 - Most common method used among producers
 - For those who do not have their own retail/wholesale markets
 - 1 gallon of syrup = 11 pounds
 - Current price is \$2.10/lb

Preservation of Maple Stands – 3 Options

- **Option 1** – Property owner leases the land to a maple syrup producer
- **Option 2a** – Property owner harvests sap from woods and boils on shares with a local syrup producer
- **Option 2b** – Property owner harvests and sells raw sap
- **Option 3** – Property owner sets up the woods and sugarhouse and becomes a syrup producer

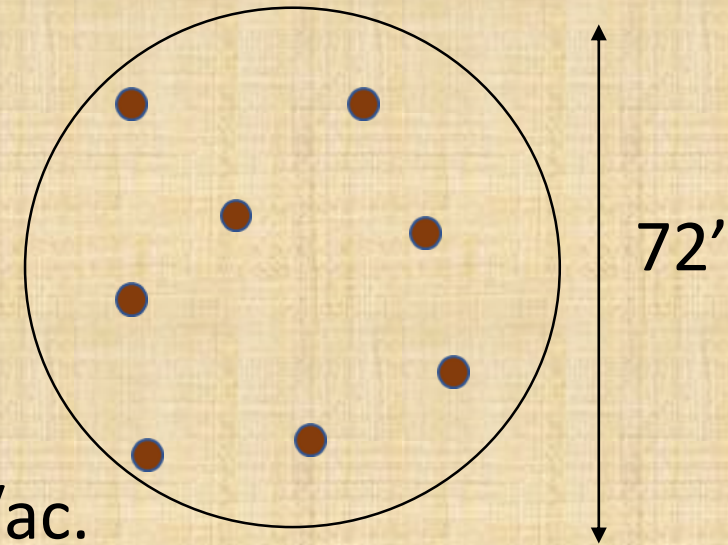
How do you determine taps per acre?

Count the number of tap-able maples within a 72' diameter circle

Diameter: 9" – 16" tree = 1 tap/tree

Diameter: $\geq 16''$ = 2 taps/tree

Multiply the number of tap-able trees by 10 to determine the taps/ac. In this example, 8 trees X 10 would indicate 80 taps/ac.



Do this in several places in the woods to come up with an approximate average of taps/ac across the property.

Option 1 – Land Lease

The property owner retains ownership of the land, but use of the land for the purpose of harvesting sap is granted to the lessee for a period of years. The price of the lease in Michigan typically ranges from \$0.50 to \$1.00 per tap depending several factors.

- **Accessibility** – distance from plowed road
- **Electricity** – existing electrical hookup or availability at a reasonable distance
- **Ease of set-up** – contour of land, slope, suitable sites for pumphouses
- **Bid process**
- **Number of taps per acre**

cont: Option 1 – Land Lease

So, if we've determined that the property contains 80 taps/ac

80 taps/ac

x40 acre woods

3200 taps

At a lease of \$1.00 per tap, this is \$3200/year rent to the landowner.

\$3200/year

x 15 years (life of lease)

\$48,000 income to the land owner and the land owner still has the land and timber

cont: Option 1 – Land Lease

– Other Considerations –

- The bottom 6' of the tree will be devalued as lumber due to being tapped.
- Metal spouts are no longer used. No metal will be left in the tree, except a slim possibly in anchor trees (approx. 1/100 trees). This is dependent on method of set up, to be determined by landowner.
- Over the 15 year lease, wood growth in a 14" tree will be about 1/8th of an inch/year, so in 15 year...2" growth, so your 14" tree will be 16".
- A legal lease is needed to protect the land owner and to be fair to the sugarbush operator. I personally leased a 30,000 tap woods in the state of Maine.
- Building – Pump house(s) will be on property. Could be left as-is or dismantled after lease.

Option 2a – Property owner sets up the woods and boils on shares

Landowner Responsibilities	Producer Responsibilities
<ul style="list-style-type: none">• Purchase equipment and supplies for tubing system, pumphouse, etc.• Install and maintain all systems• Haul sap to local producer	<ul style="list-style-type: none">• Process sap into syrup• Return 50% of syrup to landowner

This is usually done on a 50/50 system. The producer keeps half of the syrup produced, and returns half of it to the landowner for them to sell.

– Considerations –

- This requires the landowner to pursue their own markets to sell syrup
- Considerable up-front investment
- Knowledge, skill, time required to set up and maintain system
- Requires considerable time through out the year, especially during the syrup season (ie: daily work in sugarbush and hauling sap)

Option 2a – Property owner sets up the woods and boils on shares

The cost of setting up the tubing system varies from \$15-\$20 per tap in different woods based on factors such as:

- Taps/acre
- Contour of land
- Electricity available
- Buildings: *8' x 8' for pumphouse*
 10' x 20' for sap storage

At \$20/tap
 x80 taps
 \$1600/acre
 x 40 acres
 \$64,000 total tubing system and pump house

We just finished a 40ac woods with 3300 taps for a total cost of \$45,000. This amount does not include the labor of the sugar bush operator and/or the contractor who installs the tubing system.

Option 2a – Property owner sets up the woods and boils on shares

How much syrup can I expect?

- A quality, well-maintained system should produce 5 pounds (#) of syrup/tap/year
 - This can vary depending on sugar content of sap
 - This can vary depending on weather (ie: 4# is poor year, 6# is great year)

Option 2a – Property owner sets up the woods and boils on shares

EXAMPLE: System cost \$64,000 to set up. Considering the producer keeps half the crop, we start with 2.5# syrup/tap on an average year. Assume bulk price is \$2.00/#

2.5#/tap x \$2.00/lb = \$5/tap

x80 tap/ac

\$400 per acre/year

x40 acres

\$16,000/year gross income for landowner

EXPENSES	\$4200/ year depreciation (\$64,000 / 15 yr life of system)
	\$3000 electricity and supplies
	+ <u>\$4500</u> labor (300 hours @ \$15/hr)
	\$11,700 total/year

INCOME of \$16,000 – EXPENSES of \$11,700 = \$4,300 PROFIT/year

Option 2b – Property owner sets up the woods and sells the sap

In the previous option, the sap harvester received their syrup (50%) from the producer which they were responsible for selling.

Alternatively, the sap harvester could simply sell the raw sap.

- Pro: This removes their risk and obligation to bottle and find markets to sell their syrup. Less work, and less risk!
- Con: The financial return is less due to the syrup producer taking on that work and risk themselves.

How much is raw sap worth?

Current bulk price/15.64 x sugar content

Example from my woods: $\$2.10 / 15.64 \times 1.5 = \mathbf{20 \text{ cents/gallon}}$

Option 2a and 2b

Pumphouse

One or more pumphouses will be necessary.

Construction can be very basic and inexpensive, but electricity will be required.



Option 2a and 2b

Pumphouse Interior

The pumphouse protects the pump and sap receiver from the elements.



Option 2a and 2b

Sap Storage Tank

A stainless steel storage tank will be required to hold the sap for the producer to pick up. Size of the tank will vary depending on taps. The tank shown is approximately 4,500 gallons.



Option 3 – Property owner sets up the woods and becomes a syrup producer

– There are a lot of variables to this option –

- Requires access to a market for selling syrup
- In addition to sap harvest, it requires a Sugarhouse
 - Building – vary from basic pole structure to elaborate show rooms
 - Storage tanks
 - Reverse Osmosis
 - Evaporator
 - Filter Press
 - Syrup storage (food grade drums)
 - bottling facility



Dale Forrester
Maple Dale Farms
5785 Gamble Rd.
Atlanta, MI 49709

mapledalefarm99@yahoo.com

(269) 625-6738

Mapledalefarms.com