



# MAPLE SYRUP Goes Modern

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LOCAL PRODUCERS  
EMPLOY NEW TECHNIQUES—  
AND KEEP SOME OLD ONES

Maple syrup, an ancient North American product, is now made with the most modern, fuel-efficient, and ecological methods. Maple syrup is one of the greenest of the products of the Green Mountain State. And it's sweet, too!

The basics of obtaining maple syrup are the same as in the past: Tap the tree when the sap rises, and then concentrate the



sugars. In other ways, modern syrup making is quite different from the way it used to be done, and even the syrup makers are different. Instead of a grizzled older man with a horse-drawn wagon, the syrup maker may be a young man using techniques taught at college and investing in the latest technology and equipment. ▶

*Left: Cody L'Esperance's new sugarhouse. Top: A day's run of sap. Center: Sap frozen after a cold night. Above: A glimpse of sweet syrup.*





## Into the Woods

How much has changed? Let's start with changes in the sugarbush itself. Other trees have always grown among the sugar maples. In the past, these trees were merely tolerated, since there were too many of them to cut down. Now, sugarbush owners realize the value of forest diversity. Basswood leaves contain calcium, which enriches the soil. Yellow birches are the favorite tree for warblers, and wild cherries encourage robins. Daniel Fortin taps 8,000 trees at Carman Brook Farm in Highgate Springs, Vermont. (The farm has been in his family for 100 years.) Fortin says, "A forest with only one kind of tree isn't likely to be a healthy forest." A sugarbush is a complex living entity, and modern farmers treat it as a managed ecology, not a tree farm.

Not far from Fortin's farm, a young man, Cody L'Esperance, has recently begun producing maple sugar on his family's land near St. Albans, Vermont. His family has lived in northwest Vermont for generations, but they didn't do much sugaring. After studying maple sugar production at the University of Vermont and in agricultural extension workshops,

*Top, from left: Cody gathers sap. Tapping trees. Cody pounds in a spout. Pure Vermont maple syrup. Bottom, from left: Cody and Camden install tubing. Cody's dad and Mallory gather sap from buckets.*

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Cody started his sugaring operation on his family's property and some rented acreage. He arranged with a friend from high school to build a new sugarhouse and borrowed money from his family for modern equipment. His new sugarhouse is beautiful, modern, and practical.

### Putting Modern Techniques to Work

Modern equipment starts with the trees. Modern sugaring uses plastic tubing strung from the tree tap to the collection bin. Vacuum pumps are often used to extract more sap from the trees. (Vacuum extraction does not hurt or damage the trees. Sugaring extracts around 10 percent of the sap of each tree.) Fortin's Carman Brook Farm has 10,000 taps on 8,000 trees and uses vacuum extraction of the sap. L'Esperance uses tubing in one area of trees and old-fashioned buckets in a smaller area.

When tubing is used, the sap flows downhill to a stainless-steel holding tank. Sap in the holding tank is a very cold, slightly sweet liquid; it chills your teeth to drink it. The sap is approximately 2 percent sugar and has to be concentrated by a factor of 40 before it becomes maple syrup. In the past, sugar makers started boiling the sap immediately, which required a great deal of fuel. Modern sugar makers like Fortin and L'Esperance start the process with Reverse Osmosis (RO) machines. The RO concentrates the sugars and removes 75 percent of the sap water. RO machines use electricity to separate a solution into two new solutions:

- The first solution is at a **lower** concentration of sugar (or salt) than the original solution.
- The second at solution is at a **higher** concentration.

RO is often used for desalinating seawater. For example, RO machines supply drinking water aboard large ships. When used for desalination, the low-concentration solution is the end product: potable water from seawater. When RO is used in sugaring, the higher-concentration solution is the end product: syrup from sap.

RO is an efficient process that saves a great deal of fuel, but it can't make maple syrup all by itself. RO becomes less efficient as the solution becomes more concentrated. Also, maple syrup needs heat in order to develop its distinctive flavor.

### Boiling the Sap

After the RO has concentrated the sap, sugarers still boil the sap into sugar. Many use steam evaporators instead of open vats or kettles. Steam evaporators preheat the more dilute sap with heat from the boiling process. This saves fuel and makes the process more efficient and green. Also, the new evaporators are gleaming stainless, with adjustable heat rates and view ports to adjust the process. Many sugarers say they can control the boiling better and get a better product with the new evaporators. Of course, not everyone would agree!

One of the biggest issues in sugaring is foam control. A very small amount of oil must be added to control foaming near the end of the boiling process. This is usually just a few tablespoons of oil for many gallons of maple syrup, but it does present a problem. Peanut



*From left: Cody checks on boiling sap about to become syrup. Checking syrup density with a hydrometer. Changing temperature probes on auto draw-off unit. Below: Cody waits to fire the evaporator.*



oil is excellent for the job and was the oil of choice for many years. However, nowadays, everyone is aware of peanut allergies. Canola oil breaks down in the heat of the boiling process, but it adds unwanted flavors to the syrup. Safflower oil has mostly replaced peanut oil to control foaming.

Wood, fuel oil, and propane gas are all used as fuel for boiling. In general, wood cannot be used for big operations: They would require too much wood. Fortin, with 8,000 trees, uses fuel oil, as do most sugar makers. L'Esperance has a small operation. He is proud of his new RO machine and evaporator, but he uses wood because he believes wood-fired boiling gives the syrup the best flavor.

## Grades of Syrup

And finally, we get to the important question of taste. Modern users appreciate the flavor of maple. In earlier days, when maple syrup was supposed to substitute for cane sugar, the lighter the syrup, the better. Now, the darker syrups, Grade A amber syrup and Grade B syrup, are in more demand. Grade B syrup, a very dark syrup made near the end of the sap run, used to be sold cheaply as a substitute for molasses. It is now in high demand, especially because it holds its intense maple flavor when used as an ingredient in a recipe.

## Drop In for a Visit

Maple syrup operations are always fun to visit, and both farms also supply products by mail order. If you're not visiting or ordering by mail, just pick up some local syrup at a store.

If you visit the L'Esperance sugarhouse during sugaring season, Cody may ask you to lend a hand. Learn more at [www.lesperancemaple.com](http://www.lesperancemaple.com).

The Fortin's Carman Brook Farm has a sugaring house, dairy barn, and Abenaki medicine caves on the property. Carman Brook Farm has a pleasant, small gift shop featuring many Vermont products. The Fortin family came from Quebec and bought their farm in 1911. Visit them during sugaring season, or visit in the summer, when they plan to have a centenary celebration for Carman Brook Farm. For more information, visit [www.cbmaplefarm.com](http://www.cbmaplefarm.com).

Find delicious maple syrup recipes online at [www.bestofburlingtonvt.com](http://www.bestofburlingtonvt.com).