

The Sweet Life: Tapping into nature and the natural sugar of maple trees

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We must keep these waters for wild rice, these trees for maple syrup, our lakes for fish, and our land and aquifers for all of our relatives – whether they have fins, roots, wings, or paws.

--Winona LaDuke, environmentalist.

It can take as much as 70 gallons of sap to yield one gallon of pure maple syrup. Each maple tree can produce up to one gallon of sap per day. That's about eight gallons of sap just for one pint of syrup, which is worth contemplation before the syrup hits your next stack of breakfast pancakes.

Maple trees were tapped by the native peoples of the northern woodlands of the United States and Canada long before Europeans arrived. Living in harmony with their environment, they cultivated the Three Sisters (corn, beans and squash); managed their local ecosystems for wild food-producing plants; foraged for seasonal greens, nuts and berries and hunted wild animals and fish for the rest.

Today, in an effort to reconnect with the land, Sean Carter and Maria Paone are living the same land-dependent and sustainable life on their property near Ithaca in the Finger Lakes Region of New York State; they are living the sweet life as happy and enthusiastic stewards of 37 acres of forest land and the wild creatures and plants that depend on it. Early in the year, when the temperatures begin to rise, you'll find them working round the clock to harvest maple sap from the trees on their land and making pure maple syrup just like Native Americans have been doing for hundreds of years.

Having lived most of their lives in Niagara Falls, New York, and Las Vegas, Nevada, Carter and Paone had both grown tired of city living and wanted a purer, more nature-driven life. In 2013, they made a commitment to a lifestyle away from the noise of urban living. "We sought a simple basis of well-being through home-grown food and off-grid homesteading," says Paone.

They now live and work on the land that Carter describes as, "...mostly forested and surrounded by over 6,000 acres of state and Land Trust forest." The property, YB Forest Farm, so named for the adjacent Yellow Barn State Forest, is in the heart of the Iroquois Confederacy of the Finger Lakes Region. The forest was cleared for pasture in the mid-1800s and slowly reverted to forest following the Great Depression. "The land now provides us with lumber, firewood, drinking water from the bedrock aquifer, mushrooms, fruits, nuts, wild animals to hunt and maple sap for our maple syrup," says Carter. "We live with nature, enjoying a sort of seclusion," says Paone. "We work hard and sleep soundly, far from the city lights and noise. What's not to love?"

Among the mix of central Appalachian hardwoods such as oak and hickory, and northern hardwoods like beech and birch on Carter and Paone's property, are the mighty maples. Capable of living for as long as 300 years, maple trees are smart and resilient. The maples are tapped "...when they are ready," as Sean says. When the cold temperatures give way to warmer weather, maple trees pressurize. This helps to push out the sap naturally once the tree is tapped. As the temperatures change, the sap thaws, then freezes, then thaws. It's a bit tricky to determine when the sap is ready to flow, but as Carter points out, "...the trees know, and that's when you begin tapping. It's more of an art than science. We follow local Iroquois tradition, which is to tap the trees no sooner than about two weeks after the first new moon of the year. The trees need time to rest and recharge as nature intended."

The maples also have an internal healing system and send an antibiotic-like product to the area of the tap, which heals and protects that opening, thus protecting the tree from insect intruders and other hazards. Therefore, once a tree is tapped, you get about six weeks of sap flow until the wound heals, or less if spring warm-up arrives early.

Maple trees take carbon dioxide from the atmosphere and convert it to sugar, which is then stored in the trunk, and sugar content in the sap varies from season to season and from tree to tree. Sap from sugar maples usually has the highest sugar content at two to four percent. The sap from red maples is between one and two percent. During a drought, the trees close their leaf pores to conserve moisture, thus producing and storing less sugar. While we tend to think of maple syrup as just a sweetener for breakfast foods, it is in fact, much more. Even with such outstanding qualities as the simple harvesting and production and its great flavor profile, it is also

packed with lots of natural nutrition. Significant amounts of calcium, zinc, potassium, magnesium, manganese and trace amounts of B-vitamins can all be found in pure maple syrup, according to the U.S. Department of Agriculture. It's also reported that maple syrup has up to 24 different antioxidants. Comparing this to lists of ingredients on labels of various brands of pancake syrup is frightening, especially when the first ingredient listed is high fructose corn syrup or corn syrup. With other ingredients such as sodium citrate, potassium sorbate, cellulose gum and sulfur dioxide, the imitators offer no trace of nutritional value and a great deal of sodium.

Like honey, maple syrup also stores well. According to Carter and Paone, maple syrup that has been properly canned in glass jars will last for many years; in plastic containers, a shelf life of about two years, and in tin cans, about six months. Once opened, maple syrup should be refrigerated. "We store syrup in glass pint and quart jars in our root cellar," says Paone, "and use the syrup as our sweetener in coffee and tea, for cooking collards and other dishes and of course, on pancakes," she says.

Although maple trees extend into areas throughout the Appalachian Mountains, the majority of sugar bush (a stand of sugar maple trees) operations are currently found north of Pennsylvania and west into the Upper Great Lakes. Quebec is the biggest producer of maple syrup, followed by Vermont. Only the sap from trees in the Acer family (maple and box elder) is used to make maple syrup.

Syrup can also be made from the sap of birch trees and the bark of hickory trees, although they are very different in taste and texture compared to maple syrup. "Birch syrup has a strong taste like molasses and is used primarily for cooking," says Paone. Birch syrup takes even more effort to make than maple syrup; one gallon of syrup requires about 100 gallons of birch sap. Carter and Paone are passionate about their homestead living and about the resources, like maple syrup, that the land provides. But these resources are merely wonderful opportunities and must be worked. A great deal of time, pure brawn and a well-prepared plan must be invested for the opportunities to yield fruit... or maple syrup.

Currently hobby farmers, Carter and Paone have only a small amount of maple syrup to sell to the public, but plans are in motion for growing YB Forest Farm. The plans include tapping more trees and building a sugar shack, a specially designed building with a vented cupola, which allows the

steam of the boiling process to be directed outside. Improvements are great, but the integrity of small-batch harvesting will continue. "We will still hand gather the sap and boil it over a wood fire," says Paone. Growth is good, but better when that growth is sustainable, when you can share the traditions and harvest with your community and when you can stay connected to your environment with great integrity. That is the sweet life, indeed.

"Our minds are always in tune with seasonal activities," says Carter. "We have deer hunting in the fall, maple sugaring in the winter, planting in the spring and mushroom harvesting in the summer. Producing food from our land is very gratifying and deepens our connection to nature. When the sap begins to flow in the maples, it's time for action, and we live for those days! The smell of maple sap boiling, the first taste of the season's syrup, stoking a hot fire on a cold day and sore muscles from hauling buckets, that's the kind of thing that keeps us going. This ancient tradition is important to learn and pass on to others."

The Maple Sap Boiling Process

Sean Carter and Maria Paone

A 2'x4' stainless steel evaporator pan boils off eight gallons of water per hour. Sap concentrates as the water is removed, and more sap is added. Once all the sap is in and about 95% of the water has been removed, the concentrated sap is transferred into a smaller "finishing" pan that is heated. At this point it is very important to monitor the temperature of the boiling sap as it can boil over and scorch.

The sap becomes syrup at 219°F, seven degrees above the boiling point of water. We check the density (sugar content) of the syrup with a hydrometer calibrated for hot maple syrup. The legal standard for maple syrup is 67% sugar and is measured in degrees Brix (traditionally used to measure sugar content in wine, syrup, honey and beverages.) We remove the pan from the burner, and using a felt cone filter, we strain the hot syrup to remove mineral deposits, which make the syrup cloudy and can result in deposits or crystals in the bottom of the jar. Once filtered and in a special bottling pot, we reheat the syrup to 190°F and pour into sterilized, pre-heated glass bottles, seal the tops and let them slowly cool.