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WELCOMES YOU TO SUGARING WITH THE *SAPLING*

The Vermont Evaporator Company's *Sapling* is designed for the backyard sugaring enthusiast with 5 to 50+ taps. The *Sapling* does not require a sugar house, and, with additional purchases, converts to a grill and a smoker for year-round use!

Although the *Sapling* is simply designed, it still has the advanced features of more expensive evaporators. The *Sapling* is a continuous-flow evaporator, meaning that sap is channeled around the pan using dividers to create a sugar gradient. This configuration allows syrup to be drawn off and sap to be added without emptying the pan. The continuous flow is more efficient than preexisting DIY methods, which means more (and lighter!) syrup on more pancakes in less time.

We hope you get many years of enjoyment from your *Sapling*. Here's how to start!

Setting up your *Sapling*

Before you start, be smart! You're dealing with hot temperatures and a live fire so:

- **DO NOT** operate your *Sapling* while intoxicated or under the influence of alcohol or drugs.
- **DO NOT** install your *Sapling* near combustible materials.
- **DO NOT** install your *Sapling* indoors; **DO NOT** install in a garage, barn or sugar-shack unless you know how to do so safely with proper ventilation and fire protection.
- **DO NOT** attempt to move your *Sapling* while the unit is hot.
- **DO NOT** start your *Sapling* as a grill OR as an evaporator without an insulating layer of sand or ash in the bottom of the barrel. Failure to place an insulating layer in the bottom of your barrel can result in coals burning right through the bottom of your barrel.

- **DO NOT** start or run your *Sapling* as an evaporator without sap or other fluid in the boiling pan; **DO NOT** allow your *Sapling* to cool without sap or other fluid in the pan. You can quickly destroy your pan by doing so.

Assembling your *Sapling*

What you will need besides your *Sapling*:

1. A two- or four-foot level;
2. wood shims;
3. sand and/or ashes;
4. vegetable or olive oil;
5. a Phillips screwdriver/power drill;
6. a thermometer;
7. fire brick and/or some old grill grates (if desired).

To assemble your *Sapling*:

1. Remove all parts from inside the barrel (or, if your *Sapling* was shipped, the box). Inside the barrel/box, you will have:
 - one (1) flue takeoff;
 - one (1) 90° elbow;
 - two (2) pieces of flue pipe;
 - six (6) self-drilling screws;
 - one (1) evaporating pan;
 - one (1) ball valve;
 - a smidge of pipe tape;
 - (and, only if your *Sapling* was shipped) one (1) door, two (2) leg sets and eight (8) each: bolts, nuts, and lock washers.
2. If your *Sapling* was shipped, you will need to assemble the leg sets onto the barrel using the predrilled holes and the nuts, bolts and lock washers. If you picked up your *Sapling*, skip this step! The legs have been installed for you.

HINT: The easiest way to assemble the legs is as follows. If you have already installed the door, uninstall it. Orient your *Sapling* “bottom-up,” with the cavity facing down. (It helps to have a skinny table or workbench or pair of saw horses to do this while steadying the unit.) Align the

holes in each leg set (so that the feet face the rear of the machine) on the corresponding holes on the barrel and push a bolt through each pair of holes. When all bolts have been inserted, reorient the unit exit-hole down (door-side up) with the cavity facing you. Install the lock washers and nuts and tighten!

3. If your *Sapling* was shipped, you will then need to assemble the door onto the barrel by carefully aligning and then gently tapping the pegs on the door hinge piece into the holes on the plate hinge piece. If you picked up your *Sapling*, skip this step! The door has been installed for you.
4. Center the takeoff to the exit hole in the back of the unit. Using four of the screws provided, affix the takeoff by screwing into the divots provided on the takeoff. Note, there are no corresponding divots on the barrel itself: you get to choose. The screws are self-tapping, and, when enough pressure is applied, will tap into the barrel without the need for drilling holes. (However, some customers prefer to drill small divots or holes into the barrel for guidance before installing the screws. That's OK too.)
5. Slide the 90° elbow on the flue takeoff affixed to the back of the barrel.
6. Adjust the 90° elbow so that the exit of the elbow is pointed straight up.
7. Using two of the screws provided, and using your free hand to support the areas of the takeoff into which you are screwing, affix the 90° elbow to the flue takeoff. Best for the screws to be roughly 180 degrees away from one another.
8. Fit a piece of flue pipe onto the elbow exit.
9. Fit the second piece of flue pipe onto the first piece of flue pipe.
10. Place the pan on the unit so that the draw-off is on the front of the left side, as you look at the unit from the front.
11. Starting one thread back from the exit, wrap your bit of pipe tape around the draw-off to the right and wind around until completely used. Screw the ball valve on over the pipe tape. Does your unit look like the one in our logo? Excellent! You're done!

Preparing Your *Sapling* for Use

1. Remove the pan.
2. Using shims and a two- or four-foot level, level your *Sapling* front to back and side to side.
3. Place a layer of sand and/or ashes in the bottom of your barrel. **CAUTION:** failure to place an insulating layer in the bottom of your barrel can result in catastrophic failure – the fire may burn right through your barrel! For added protection and to increase efficiency, you may also choose to line the inside of your barrel with fire brick, available at your local hardware store. You may also aid air flow by putting an old grill grate in the bottom of your barrel.
4. Coat the exterior of the barrel with a thin layer of vegetable or olive oil (apply with a paper-towel or

rag).

5. Replace the pan. Using your level, confirm that your pan is level front to back and side to side.
6. Before you boil your first sap, you'll want to remove any residual materials from the pan. Here's how you do that:

Prepare a solution of 10 gallons of water combined with 2 tablespoons of baking soda.

Fill the pan to 2 or 3 inches with the solution.

Start by building a small fire in the barrel and gradually build to a larger fire. **NOTE: We DO NOT** recommend heating your *Sapling* to over 600 degrees (as measured just above the elbow at the exit pipe) at any time. You may want to use a magnetic stove thermometer to track your *Sapling's* temperature throughout operation.

Boil the solution for approximately 30 minutes, making sure the solution in the pan remains at approximately the 2-or 3-inch level by adding more solution, as needed.

7. Check your equipment:

Check to see that there are no leaks at the fittings in the pan.

Assuming you have an even fire underneath, check to see that the pan is boiling evenly.

Open the valve – ensure it works properly.

Check to see that your *Sapling* is drafting and venting correctly (that the fire has adequate air intake and that smoke is generally only coming out through the stack).

8. Allow the unit to cool and then drain the pan.
9. Rinse the pan thoroughly with clean water and dry.

NOTE: It's always best to use non-chlorinated water if possible (chlorinated water can eventually cause corrosion of the pan).

Operating Your *Sapling!*

CAUTION: NEVER, EVER, EVER fire the *Sapling* without liquid in the pan (or allow it to cool without liquid). Otherwise, the operation of the unit is relatively simple! Basically, you add sap at one location and it travels around the pan, becoming denser as it evaporates, until it gets to the valve. Here are the details:

1. Add 2 inches of sap in the pan. This is about 5 gallons of sap.
2. Start your fire.

3. Get the sap boiling.
4. After the sap has boiled down to half of its volume, gradually add more sap at the back, right corner of the pan until the sap level is back up to 2 inches. Continue to add sap at this location gradually as needed to keep the level at 2 inches. Do this for several hours.
5. There are a number of ways to tell if your syrup is “done.” The most sophisticated is to use an instrument called a syrup hydrometer to measure sugar content. Another is to measure temperature: syrup boils at about 7 degrees F above the boiling point of water (so, approximately 219 degrees F). Therefore, when the temperature of the liquid close to the exit valve measures 219 degrees F, you can draw off syrup (this will take several hours). The syrup should have an amber color and have the consistency of . . . syrup.
6. Get a clean container and place it under the valve exit.
7. Open the valve and watch your exit temperature.
8. If possible, simultaneously add fresh sap at the introduction location. If not possible, add some before you draw off and some more after.
9. Continue to draw off syrup until your exit temperature drops below 219°. You will likely get less than a pint of finished syrup per draw.
10. You may also choose to draw off a bit early into another pot or pan and “finish” on, for example, a propane burner outside, or on the kitchen stove inside, where it may be easier to control and monitor the temperature. **Do not feel badly about choosing to go this route, especially at the beginning. Finishing on the *Sapling* requires practice and skill. You will get better at this every year!**
11. At the end of your boiling day, draw off about a gallon of the sap closest to being syrup. You can finish it as described above, or use it the next time you boil for a faster startup.
12. Monitor your evaporator until the boiling stops and the fire has died out.

Some Tips:

Don't add too much new sap at one time, and try to maintain a constant boil. This will result in a more efficient process and lighter syrup.

To obtain high, even heat, use dry, mixed (hardwoods and softwoods) wood that is thinly split.

Load often with small amounts of wood to maintain a consistent level of heat.

Think you need more air flow to sustain optimal temperatures? Open the bung on the bottom of the back of the unit before you fire up next time – that might just help.

Maintaining your *Sapling*

During Sugaring Season

Clean out some, but not all, of the ashes when the unit has cooled after each boil

After The Season is Over

Your pan will likely have some deposits/scaling. To clean, use as much of the baking soda-water solution described above as you need to so that the coating to be removed is covered with water. Simmer the solution for a minimum of one hour and ideally until you see the deposits dissolve. Let the fire die out and leave the pan overnight. Brush off the loose scale and rinse the pan. If deposits remain, you may want to repeat the process. Store your pan in an indoor location (a garage, shed or barn is fine).

The best practice is to clean out the ash and oil the inside of your barrel with vegetable or olive oil when not in use for extended periods of time, and, unless your *Sapling* can be stored in a garage or barn, you should cover it when not in use. If water gets in your barrel, be sure to dump it out, dry it out, and apply another layer of oil to discourage rust.

Expansion and contraction caused by heating, cooling and exposure to the elements may eventually cause some cracking and/or flaking in the paint on your *Sapling*. If you notice this, after the barrel has cooled, sand the area with 100 grit sand paper and repaint with flat black stove paint, available on our website (www.vtevap.com) or your local hardware store (look for the Stove Bright® brand for the best match), or stove polish, also widely available.