



SUGARMAKERS' GUIDE 2023 – IN THE WOODS FORTY YEARS AGO, in 1984, Leader Evaporator stopped publishing its "Maple Sugar Makers' Guide." The compact, illustrated booklet had been, for half a century or more, the veritable bible to getting started and succeeding in syrup making. It boiled down and synthesized decades of hard-won experience from farmers, dealers, and Leader experts, and made the process accessible to all.

It is with that heritage and purpose in mind that we are pivoting with the editorial focus of Get Maple Done. While we will continue to share stories of sugarmakers all across the US and Canada, it is also our goal to make this publication a modern version of the Maple Sugar Makers' Guide. Each issue will focus on a distinct part of the process, with helpful tips and instruction, and of course announcements of our newest products and releases.

And there is plenty to talk about. After all, "innovation" is part of our name hear at H2O, and it is innovation that is going to carry the company, and the industry, forward (while of course honoring and building on our traditions and heritage).

This is why we have invested in a new state-of-the-art tubing manufacturing line and spooler that opens new doors and possibilities. It is why we have decided to shorten up the supply chain for our popular check valves, bringing their assembly in house.

MAPLE SUGAR

MAKERS' GUID

Unple Sugar Maker

MAPLE SUGAR MAKERS' GUIDE

HE LEADER EVAPORATOR CO., INC.

For many across the US and Canada, the 2023 sugaring season was extremely challenging. And while some might say "that's just farming - always at the mercy of the weather and climate," such challenges motivate us to innovate even more, to mine our history and heritage for lessons that we can bring forward to help maple sugar makers to chart a more stable, and sweeter, future.

aplo Sugar

Be sure to reach out and get in touch if we can be of help in any way.





FEATURES

Syrup and Family (Pittman Maple Farms, Wisconsin)	. 2
Starting Early (Wanish Sugar Bush, Wisconsin)	. 16
Building a Legacy (Érablière Sucre et Monts, Quebec)	.22
Maple Game Changer (Erlsten Brothers Maple, Ohio)	34
All in On(tario) Maple (Pefferlaw Creek Farms, Ontario)	46

DEPARTMENTS

Spouts and Tapping	. 5
Гubing	.14
Fanks	21
Fools	26
Fittings and Kits	31
Monitoring	36
Maple Sap Extractors	40
Pumps	. 51

INFORMATIONAL PAGES

Best Tapping Practices	8
Tubing Installation Calculations	13
Mainline Installation Types	14
Using Wet and Dry Lines	15
Tubing Maintenance	25
Monitoring Installation Tips & Techniques	38-39
Leak Detection	48-49
Vacuum Pump Know How	50

CONTACT INFO

Dealer Listings	57
Sales and Customer Service Team	. 61



Syrup & Family Getting together and having fun

PITTMAN MAPLE FARMS stands in a wide swale of land in southwest Wisconsin bordered by rich forestland.

The family operation began "with my grandfather back in 1945 with a kettle on top of the hill," says Greg Pittman. And there was the usual progression: to flat pans and then to a couple of evaporators in the woods (which is Greg's first memory of the operation from back in the 1960s). They moved the boiling operation down to its current location in 1978, and it has continued to grow organically ever since. They started boiling for local farmers after a high school kid who didn't have time to boil asked if they could help. Then another neighbor asked, and another. Now during sugaring season the driveway is chock full of trucks delivering sap to be fed into a Supra 6-membrane RO and boiled on two large Leader Evapora-



tors (a 5'x16' wood-fired and 4'x16' propane-fired).

"We have about 20-25 different families that actually haul sap into us," says Greg's son Jason. "So, as the years have gone by, people have expanded, and we've picked up more guys. It's just really become kind of a group thing between family and friends and just people that we pick up along the way. They all turn into our friends and it's kind of just one big family that all comes together in the spring of the year. It's turned into just quite the show.

The other side of the business - service and equipment supply, grew up around Greg's natural inclination as a problem solver and a tinkerer. "I always had to carry a terrific amount of supplies here, for all the customers bringing sap in," Greg recalls. And he has long been known far and wide as the guy to bring pumps and equipment to when they needs fixing.

< The whole Pittman family pitches in.



But, in the end, it's all about the syrup, and family.

"Once you do it," says Jason, "everyone says it gets in your blood. But it's something that you genuinely enjoy – as chaotic and hectic as this time of year can be... it's kind of a high energy kind of adrenaline high thing... but it's a fun process, and you know the end result is hopefully a lot of gallons and just everyone kind of getting together and having fun doing it." Their greatest hope, Jason says, is that their kids take an interest in the business, in carrying it on. "You know, my son likes to grab pieces of wood and bring it into the wood evaporator and just help do that kind of stuff," Jason says. "That's always the pride, and the hope that someone close to you in the family wants to take it over someday, and just keep everything going – for not just yourself, but the generations of the past. That kind of means, I guess, the world to any sugarmaker out there. It's that it just gets passed on."





TWO LEADER HC-4 RO MACHINES H2O SUPRA 6 MEMBRANE RO LEADER 4'X16' RF PROPANE-FIRED ARCH LEADER 5'X16' WOOD-FIRED ARCH WITH MAX/ REVOLUTION COMBO H2O DRAW-OFF TANK "DOUBLE 60" H2O EVENFLO DRAW-OFF





Visit our YouTube channel to see our video about Pittmans.

SPOUTS & TAPPING THE CHECK VALVE

The Value of Check Valves

Our proven technology effectively eliminates the backflow of sap from the tubing system, and, as a result, increases sap production in two ways:

- ✓ Sap that leaves the hole during short sap runs cannot be pulled back by the tree as it freezes.
- ✓ Contaminated sap from the tubing system is prevented from being pulled back into trees, extending the sugaring season and substantially increasing sap production.



Check Valve Adapter

The Value of COLOR

We have introduced color to some of our most popular spouts and adapters, in order to help you color-code your woods, to help make your operation more efficient and profitable. Alternate colors annually to eliminate yield loss from reusing old spouts you may have forgotten from the previous year.

	0	\bullet				
Clear Check Valve Spout	4712	_	4712R	4712B	4712Y	4712G
Check Valve Adapter	4111	4711	4111R	4111B	4111Y	4111G

The ROI on Check Valve Spouts

		Centre ACER	Cornell
Net Gain (USD) Additional revenue from <u>each</u> Check Valve spout		\$2.19	\$2.24
Annual Yield Increase (%)		20%	26%
Net Gain (USD)	5 000 taps	\$10 400.00	\$10 650.00
Potential as various	10 000 taps	\$20 800.00	\$21 300.00
5494154311 51263	20 000 taps	\$41 600.00	\$42 600.00

Bulk syrup

revenue per

tap

\$14.85

\$12.40

\$12.03

\$9.53

Annual

volume

(gal.)

23,35

19.5

18.9

15

Test

Check Valve Spout

Check Valve Spout

Standard spout

Standard spout

Average

at 2 Brix

(lbs)

5.94

4,96

4.81

3.81



Check out Dr. Tim Perkins at UVM Proctor Maple Research Center video on YouTube! *Results come from 2 research centers in differents regions with advanced control sites.

Bulk syrup

Price/lb

(USD)

\$2.50

-

\$2.50

_

Total

gain

\$2.45

-

\$2.50

-

Difference

Check Valve

vs Standard

\$0.26

-

\$0.26

_

NYLON

704 SERIES

This spout is also known as DU-EAU, from the original Darveau design. With its two barbs and its oversized head, it has long been appreciated for its long lifespan and superior performance.

Tap hole : 19/64"





Black 704 Du-Eau - 19/64" ERAH20704 Blue 704 Du-Eau - 19/64" ERAH20704B

705 SERIES
Offered in black, blue or white, these are
the most popular H₂O spouts, because
of their high ratio of quality to price.Image: Comparison of the perfect compromise
between an extended lifespan and a
perfect seal.Black 705 spout - 19/64"Blue 705 spout - 19/64"White 705 spout - 19/64"Tap hole : 19/64"ERAH20705ERAH20705BERAH20705W

708 SERIES

With a reduced drilling diameter of 1/4", these spouts will minimize the compartmentalization zone affected by tap holes. The compartmentalization zone is the area of dead wood caused by tapping. The diameter and depth of the tap hole have a direct influence on how large this area becomes. Recent studies have demonstrated that, by switching from a 19/64" to a 1/4" spout, the compartmentalization area decreases by two to three times. If the sustainability of your forest is a priority, 1/4" spouts from our 708 Series is the wise choice.

Tap hole: 1/4"







Blue 708 spout - 1/4", 5/16" connection ERAH20708-B



White 708 spout - 1/4" , 5/16" connection ERAH20708W

POLYCARBONATE

709 SERIES

This polycarbonate clear spout is made with thin wall technology that ensures the best sealing at the tap hole. Because of its perfect transparency, sap can easily be seen running through it. Tap hole : 19/64".

CLEAR 4713 SPOUTS

Our 5/16" Clear Disposable Spout gives you the ability to see the sap flowing out of the tree and into the tubing. Designed for use for just one season, after which the fitting should be replaced.

NYLON SPOUT ADAPTER

This nylon spout adapter converts a 7/16" tubing spout to a 5/16" tubing spout, by installing a new tip onto the existing stubby or standard 7/16" spout.

The adapter allows one to replace the tip each year, limiting the effects of bacteria in the tap hole.

	0					
Clear 5/16" Spout	4713	_	4713R	4713B	4713Y	4713G
Nylon Spout Adapter	4116	4716	4116R	4116B	4116Y	4116G









Spout Adapter



IDEAL TAPPING TEMPERATURE

For best performance of materials and tree seal, tap when it is between 10 and 35°F.

It is too cold to tap if the mercury drops below 10°F. Plastic materials harden, increasing the

risk of breakage. You will also have increased risk of splitting your trees when it is this cold. Ice in fittings or lines is difficult to break free, and can damage materials.

When the temperature rises above 35°F, bit-cutting performance and cleanout will be negatively affected. Tapping when sap is running is an added challenge, especially with adapters.

30 20 10

BEST TAPPING PRACTICES

TREE SIZE

Recommended minimum tree sizes (use a tape measure or rope to gauge the circumference) ✓ 1 tap: minimum 9" diameter (29" circumference)

2 taps: minimum 16-20" diameter (51-62 circumference)

Measure "at breast height" or "4 feet from the base," above any knots or growths.

For oblong or misshapen trees, use the average circumference of the small and large variation.

FOR SPLIT TREES

If the split is above knee height, treat it as one tree. If the split is below knee height, treat them as individual trees.

TAP CONSISTENTLY

Aim for 5-7 hammer repetitions

The tree will let you know. You should get a sound like:

"Tap,Tap, Tap, Thud"

TAPPING BITS

Sharpened with precision, for neat and precise tapping. Laser drawn lines at 1-1/2" and 2".



Tapping is the most important job of the year in the sugarbush. Start by using the best materials: H2O Innovation, Bolduc, and Leader tapping bits are designed to be extremely sharp and provide debris free cleaning.

Studies have shown that taphole depth can play an important role in sap production and overall tree health. Recommended at depths of 1 ½" to 2" deep, depending on tree size, the H20 Innovation bit has two clear depth markers — for the perfect taphole every time. The H20 Innovation bit is engineered with tap consistency in mind. The Leader bit is ideal for smaller trees (10"-12"), improving cleanout speed, and eliminating bark tearing. They also have a reduced head point to prevent the bit from "walking" when starting the hole.



Check out the demo on our YouTube channel!

5/16" TEES, ADAPTER





Long female tee-plug 5/16" ERAH20713



Red male block-tee, 50/50 left & right

ERAH20714R



Tee with plug 4737



5/16" End of line hook plug ERAH20819



End hook for 5/16'

4745



Slide fitting for 5/16" with pin 4743



Female tee-plug 5/16" with plug adapter ERAH20718



Red long female block-tee, 50/50 left & right ERAH20713R



Green dead end tee LEFT 4744L



Hook for slide fitting ERAH2081525



Long female slide fitting for 5/16" tubing

ERAH20815



Female tee-plug 5/16" ERAH20715



Red female block-tee, 50/50 left & right ERAH20715R



Red dead end tee RIGHT 4744R



End of line black ring ERAT1400



Long female black end of line elbow hook

ERAH20817



Male tee-pin 5/16" ERAH20714

DID YOU KNOW? Using dead end tees can save time and money in the woods?

Sap flow for the last tubing loop on the tree is completely shut off and stopped by the fitting. The result is a significant reduction in tubing leaks caused by squirrel chews from the end tree loop.

ADAPTERS



Union hook 5/16'

ERAH20813



Hooked connector*

4710

*New & Improved! Reduces unwanted tension on mainline entrance fittings. Doubles as a straight connector.



MAINLINE ENTRANCE

Renowned for its unparalleled sealing, this saddle ranks among the best, especially when it is used under high vacuum. With its unique rubber seal that follows the shape of the hole on the mainline year after year, it will help you manage leaks over many years.





STEP 2

STEP 1

Install the saddle around the mainline, and temporarily attach it

> **STEP 3** Insert the elbow all the way in



STEP 4 Secure with the screw



Quick-seal mainline entrance fitting			
4708	3/4" quick seal		
4708G	3/4" replacement gasket		
4706	1" Quick seal		
4706G	1" replacement gasket		





5/16" Gasket ERAH20829

5/16" Elbow ERAH20720

that occur when you use a fixed head elbow sadle!



Saddle elbow screw W-VISZINC



Saddle clamp 3/4" ERAH20825 1" ERAH20826 ERAH20827 1-1/4"



3/16" FITTINGS

BENEFITS OF 3/16"

- Creates a natural vacuum
- · Improve performance even without a releaser or vacuum pump
- Up to 27 in Hg vacuum potential!





Blue spout 19/64", 3/16" ERAH20705-3B



Female tee-plug 3/16" ERAH20715-3





Red block-tee 3/16" ERAH20715R-3



- Have a leak-free line
- · Have an elevation between the first tap and the mainline
- Have a height difference to create the suction effect

(a minimum of 30 ft. is necessary to create the highest vacuum effect)



Leader clear 3/16" spout 4113



Reduced elbow 5/16" to 3/16"

ERAH20720-3

Leader clear-valve spout, 3/16"

4112



Slide fitting for 3/16" tubing ERAH20815-3



3/16" drop for 5/16" lateral ERAH20712

ERAH20712

In recent years, it has been shown that 3/16" diameter tubing helps create additional vacuum upstream when the tube is full. The slope must merely be steep enough so that a vacuum effect is created.

Unfortunately, sugarbushes do not always come with the ideal topography for this type of installation. It is therefore logical to conclude that this effect could be achieved by using 3/16" drops on a 5/16" tubing network.

Recently, some producers have in fact observed that an additional vacuum was indeed created by using 3/16" with a 5/16" lateral. The H2O 712, paired with a 705-3 spout, was designed specifically for this purpose.





Hook connector 3/16" to 3/16" tubing





3/16" End of line hook plug

ERAH20818

4100

4101

Hook connector 3/16" to 5/16" tubing



Tubing Installation Calculations

SETTING MAINLINES

Some guidelines on setting a good mainline (typical for one-sided mainlines):

- ✓ If you have 50+ taps/acre, allow 6 feet of mainline per tap
- \checkmark $\,$ If you have less 50 taps/acre, allow 6.5 feet of mainline per tap
- ✓ For lateral line, expect to get 20-25 taps per 500 ft roll, or about 40 rolls for 1000 taps.
- ✓ Expect to put in 3.5 taps per lateral line
- ✓ Expect to get 166 drops per 500' roll (when cut to recommended 36" length)

WHAT IS THE MAPLE DENSITY OF YOUR WOODS?

How many taps you have per acre is one measure of your operation.

- **75+**: This means you may have a larger percentage of small trees, and so you may need to do some thinning.
- **50-75**: This is average for North American woods, ideal for installation metrics **UNDER 50**: Woods will cost more per tap to install. Monocultural

woods (or over-thinning) will mostly require line posting or lead to

underbrush / briar overgrowth challenges over time.



WOODS SPEAK

- **SPOUT** a fitting connecting the drop to tree. Also called a tap or spile.
- **DROP** 5/16" or 3/16" line connecting spout to lateral line.
- **LATERAL LINE** 5/16" or 3/16" line that connects drops to mainlines.
- **MAINLINE** 3/4" or 1" lines that transport sap from the lateral lines and connect to the sap tank or wet/dry system.
- **WET AND DRY LINE** Liquid and vacuum line system. Also called a conductor system.
- **HIGH TENSILE WIRE** The 12.5 or 9 GA wire holding wet/dry and mainlines.

TUBING

MAINLINE INSTALLATION TYPES

Choosing a woods installation type can be key to sap revenues. We've identified three types that are most successful. Different types can be installed in the same sugarbush.



Collection point Wet/Dry

Mainline

One-sided Mainlines _____

Best	choice	for	woods	layouts
------	--------	-----	-------	---------

PRO – Easiest to walk and maintain, lateral lines are all installed above the mainline below leaving the bottom side easily walkable.

CON- More expensive to install/layout



Common for gravity systems. Laterals installed on both sides of mainlines. In some cases, these can be installed in a central collection point from a steeper slope.

PRO – Inexpensive. Simple and effective for flat woods and systems under 1000 taps.

CON - Can be difficult to create slope and slow to walk.



Down slope

Shotgun →

Typical for large systems. Can be combined with one-sided mainlines for large systems.

PRO – High volume, straight Wet/Dry system

CON- Generally installed with oversized wet/ dry lines. Slow/difficult to walk and check leaks. Baseline Wet/dry system doesn't always favor the steepest slope.





WET LINE — This is the "bottom" line that is designed for sap delivery, and sized for the tap count total.

DRY LINE — Also known as the "top line," this is sized to maximize vacuum delivery, based on tap count and tubing length.

PROPER LINE SIZING

The maximum tap count for wet and dry lines should be based on the diameter of your line:

³ ⁄4" x ³ ⁄4"	600 taps maximum
1" x 1"	600-1000 taps
1 ¼" x 1 ¼"	1000-2000 taps
1 ½" x 1 ½"	2000-3500 taps

Unnecessarily over sizing lines will heat up sap in lines.

Flat woods may affect line drainage, and so line size may need to be increased to the next larger size.

SPACING: Mainlines should be 80-100 ft from each other and will perform best when tightened with sideties, to eliminate sags. Steep or rocky (ledge) woods may be more challending to find tie-off points.

SUPPORT WIRE: If you have 3/4" and 1" mainlines, you can use a single support wire. If you have larger diameter mainlines (1/4", 1 1/2", 2"), you will want to double up the support wire for added strength (12.5 or 9 GA H/T).

PITCH: It is recommended you maintain a minimum 2-6% pitch toward your collection system (2% means 2 feet of drop/fall every 100ft) for single mainlines. For Wet and Dry lines, the 2% minimum still applies, but steep is generally better.

WIRE TIE: You want to add a wire tie every 18-36 inches, depending on your line size and pitch.

LENGTH: Here are some good rules of thumb for the maximum line length of mainlines, based on tap count.

¾" — Maximum 1000 ft, 250 taps

- **1**″ Maximum 1500 ft, 500 taps
 - Wet/Dry systems can be much longer, if they are sized correctly.
 - ✓ For single mainlines only 3/4" & 1" lines recommended.



COLFAX, WISCONSIN

Starting Young ZERO TO 20,000 IN FIVE YEARS

WILL WANISH STARTED tapping trees and making maple syrup with his Uncle Jon in 2018. Will was just 15 at the time. But he so enjoyed the process that he decided to tap more trees in 2019.

After that season was over, he realized that maple was his future, and that he wanted to start his own business. Wanish Sugar Bush was born. His parents, Todd and Heather, encouraged his entrepreneurial spirit, and today his dad likes to joke that he is now his Will's gofer.

"When Will decides to do something, he decides to DO IT and puts all of his efforts towards his goals," Heather said.

LEADER 4 X 16 EVAPORATOR WITH CIP LEADER CANNER LEADER 20-GALLON WARMING PAN LEADER 7.5" FILTER PRESS H20 12-POST SUPRA REVERSE OSMOSIS H20 20" FILTER PRESS H20 500 GALLON HEAD TANK H20 2000 GALLON SAP COLLECTION

SETUP



Do it Will certainly has. This past year, Wanish Sugar Bush hit 20,000 taps and, just before the sap began to run, Will took delivery on a 4'x16' Leader Evaporator (of course with CIP, because Will's wise beyond his years), plus a full set of tanks and H2O RO equipment.

"I'm excited to pursue my dream of business ownership," Will said, "and I'm looking forward to producing and offering the best locally-made, 100 percent pure maple products." You Tube Visit our YouTube channel to see our video about Wanish.













30P RIGID

- ✓ Rigid
- Designed for flatter woods where pitch is minimal.
- ✓ Vacuum Seal Temp Max: -10°
- ✓ Great in regions south of Buffalo NY (zone 5,6, 7)

4730PB



GRIP

- ✓ Semi-Rigid
- Rigid enough for flatter applications
- ✓ Vacuum Seal Temp Max: -35°
- ✓ Best Seller
 − What the pros use

4701



UNI-50

- Semi-Rigid
- Can be used for most lateral and drop installations
- ✓ Vacuum Seal Temp Max: -35°

4702

5/16" pre-cut drops

Because our drops are cut directly off the tubing manufacturing line, they remain perfectly straight. Save time and money by not having to manually cut drops, or to deal with drops that curl.



When to Replace Tubing

Drops	5 years
Lateral Lines	10 years
(5/16" or 3/16" tubing)	
Mainline	20 years

Tubing can last longer than the time spans noted, but bacteria grows worse over time, reducing yield. Fittings and components can also weaken over time.





SEMI-RIGID

- Designed for lateral installations in \checkmark steeper woods
- Superior seal in cold applications Vacuum Seal Temp Max: -35°
- √

ERATUY5/16H2OSR





G7

- Semi-Rigid ✓
- Thick wall for added strength ✓
- Vacuum Seal Temp Max: -35 ✓
- High-performing in colder regions (Zone 2, 3, 4) ✓

ERATUY5/16H20G7





FLEX

- Flexible tubing designed for drops ✓
- Smooth inner wall to minimize ✓ bacteria growth
- Not recommended for use as lateral lines Vacuum Seal Temp Max: -35°
- √

4700 ERATUY5/16H20FLEX



3/16" MAX FLOW 50/H2O

- √ Semi-Rigid
- √
- Universal lateral and drop lines Vacuum Seal Temp Max -35° √

473800 ERATUY3/16H2OG-V

TUBING

Expanded Mainline Options

Our new extruder line (photos at right), added to our existing capacity, has considerably shortened our supply chain. Tubing can now be extruded in up to 2500-foot spools.

30P

- Smooth inner walls for less bacteria buildup
- Light color to see sap movement and to keep it cooler
- LDPE for less thermal expansion

25P

- Available in blue, black, and pre-lashed
- MDPE for all installation types

20P

• Special formula reduces weight while maintaining rigidity.

20P Mainline

- Economical installation solution.
- Deep blue color.





TANKS

Our sap tanks are made of extremely robust, grade 304 (20 ga.) stainless steel. Available in many sizes and capacities, our tanks offer guaranteed strength & durability.



- ✓ 120 to 13 000 gal. US capacity
- ✓ Available on 4-inch skids and reinforced every 24 inches
- ✓ Premium paint quality for increased rust resistance
- \checkmark Can be personalized with your company name
- ✓ Available in blue color standard or red, subject to availability (-R)



From 2 feet to 10 feet wide Up to 7 feet tall and 32 feet long





CUSTOM TANKS! We offer customization with your company name of our tanks. Call us for more details.

Building a Legacy

TAPPING INTO TECHNOLOGY AND INNOVATION



"WE WERE LOOKING for a supplier who could guide us in our quest for optimization and innovation, says Mathieu Émond, one of the owners of Érablière Sucre et Monts in Dégelis, Quebec. "Actually, we wanted more than a supplier: what we really needed was a solid partner to help us fulfill our ambitions."

They found that partner in H2O Innovation. Mathieu and his brother François, who bought the 24,000tap sugarbush in 2011, first met the H2O Innovation team in 2015. And it happened to be the moment when H2O was looking for someone to field-test their cutting edge technology. Together, the partners took sugaring to a whole new level.

With encouragement from H2O, Sucre et Monts made the bold decision to replace its 15° Brix reverse osmosis concentration method with a 35° Brix High Brix concentration. They were the first adopters of this technology, originally patented by H2O Innovation (and now also licensed to other manufacturers). The 16-membrane osmosis unit is combined with a 5' \times 14' Finishing Rig evaporator that has just two feet of flue pans.

Sucre et Monts immediately noticed an improvement in their operations.

"Osmosis systems are much simpler to manage and clean than an evaporator," says François. "It has saved us both time and money, which we can now dedicate to the tasks we need to carry out in the forest. This has really boosted our production levels. On top of that, the system allows us to develop even richer flavors."

As if that was not enough, around the same time, Sucre et Monts also invested in H2O Innovation's monitoring system, which gave them more control over their forest. The system's strategically positioned sensors collect data and transmit



it via radio waves to an application that generates clear, comprehensive reports in real time. The upshot: leaks are located and fixed in record time, saving money and aggravation.

"With this system, we're saving even more time," François says. "In our Dégelis area, for example, we only need one employee to manage a zone with 35,000 taps. It really makes a big difference."

The investments in technology and the partnership with H2O has truly paid off. Their success attracted the attention and involvement of Alex Émond, who joined them first as a part-time shareholder, then later as a full-time team member. They obtained organic certification in 2016. Then, between 2016 and 2022, they bought two more land plots and added 47,800 taps. The operation now farms a total of 71,800 taps.

But was that enough? Of course not. There were still improvements to be made. So, in 2022, the company upgraded its equipment to a fullyautomated 36-membrane reverse osmosis system that concentrates sap at 40° Brix in a single pass - an unprecedented improvement in the industry. As a result, Sucre et Monts concentrates sap in record time, further minimizing the time required for evaporation. Concentrating sap at 40° Brix also saves on the oil required to run the evaporator. And because they boil on the evaporator for such a short period of time, it takes even less time to clean.

Clearly, the Emond brothers are the kind of strategic, out-of-the-box



thinkers that will lead innovation in the maple industry over the coming decades. And, what is more, the team is doing everything it can to ensure that their company and their industry both have a secure future.

For instance, by using H2O Innovation's ¼" 704 series spouts in their sugarbush, instead of the more popular, larger spouts, Sucre et Monts reduces compartmentalization zones, i.e., the dead wood zones on their trees. A smaller tapping hole translates into fewer wounds inflicted on the tree, which in turn fosters the most optimal healing of the tap.

"We want to be able to leave a strong family business to our children," says François. "And that's why we wanted to implement sustainable processes and techniques – to preserve our forests as much as possible."

7'x20' H2O CLASSIC EVAPORATOR FULLY AUTOMATED SUPRA, 36-MEMBRANE HIGH BRIX 20" H2O FILTER PRESS VIPER EXTRACTORS 708 SERIES SPOUTS H2O MONITORING SYSTEM

TUBING MAINTENANCE

In Canada, maple producers are allowed to use isopropyl alcohol to sanitize their tubing systems. After the season is over, alcohol is injected in the system, spout by spout, and acts as a disinfectant during the off-season.

This practice can offer several benefits:

1. EFFECTIVE DISINFECTION

Alcohol kills or inhibit the growth of microorganisms, including bacteria and fungi. It can effectively dissolve and remove all residues, ensuring a clean and hygienic mainline. Sanitizing your tubing system with alcohol helps reduce the risk of contamination by pathogens that could affect the quality of your maple syrup.

2. QUICK EVAPORATION

Alcohol evaporates quickly, leaving behind minimal residue. This is especially important, because you don't want any residue to mix with the sap. At the beginning of the season, tubing systems are flushed out before sap is stored.

Remember, while using alcohol for sanitizing your mainline has its benefits, proper safety precautions are essential, as is the appropriate concentration of alcohol. If you have concerns or specific requirements, consult a Leader-H2O expert to ensure you're using best practices for cleaning your equipment.

Tubing maintenance, cleaning solutions & tools

Product No.	Description
ERAALCOOL4L	70% Isopropylic alcohol 4L
ERAALCOOL20L	70% Isopropylic alcohol 20L
ERAALCOOLBAR	70% Isopropylic alcohol 45 gal. barrel 🚥
ERAALCOOLAD2J	Tapping alcohol 4L AD2J
CHE-NAOCL-5G	Sodium hypochlorite 12% 5 gal.
ERAPISTALC5	5ml alcohol doser gun
ERAPISTALC15	15ml alcohol doser gun
KIT-08L	5L backpack tank and 15ml alcohol doser gun kit
628451480228	Brush tip for alcohol gun











FENCING

Mainline support wire & galvanized side tie wire



Wire ties 16 & 17 ga.

Product No.	Dimensions
4768	4" for tubing ½" – 1000/coil (17 ga.)
4769	5" for tubing ¾" – 1000/coil (17 ga.)
4770	6" for tubing 1" – 1000/coil (17 ga.)
4770A	8" for tubing 11/4" - 11/2" 1000/coil (17 ga.)
4770C	10" for tubing 2" – 1000/coil (17 ga.)
4770D	12" for tubing 2"+ 1000/coil (17 ga.)
4763	8" for tubing 11/4" - 11/2" 1000/coil (16 ga.)
4769A	6" for tubing 1" - 1000/coil (16 ga.)
4770A 4770C 4770D 4763 4769A	8" for tubing 1"/4" -11/2" 1000/coil (17 ga.) 10" for tubing 2" - 1000/coil (17 ga.) 12" for tubing 2" + 1000/coil (17 ga.) 8" for tubing 1"/4" - 11/2" 1000/coil (16 ga.) 6" for tubing 1" - 1000/coil (16 ga.)



Product No.	Dimensions
ERABRCAR9-50	Mainline support wire # 9 - 50 lbs aluminium clad steel
ERABRCARGALV9-50	Mainline support wire # 9 - 50 lbs galvanized steel clad (strongest / high tensile)
ERABRUNI9-50	Mainline support wire # 9 - 50 lbs galvanized steel - 900 ft. approx
ERABRUNI12-10	Side tie wire # 12 - 10 lbs - 345 ft. approx.
ERABRUNI12-50	Side tie wire # 12 - 50 lbs – 1 735 ft. approx.
ERABRUNI14-10	Side tie wire # 14 - 10 lbs - 580 ft. approx.
ERABRUNI14-50	Side tie wire #14 - 50 lbs - 2 465 ft. approx.
4776	Mainline support wire # 9 - 50 lbs - 850 ft. approx.
4725	High tensile # 12 ½ - 52 lbs - 2 000 ft. approx.
4777	Side tie wire with spooler, 600 ft. per spool

Wire ties 18 ga.

Product No.	Dimensions
ERABRTWIS5	5 ½" for tubing ¾" – 2 500 pkg
ERABRTWIS6	6" for tubing 1" – 2 500 pkg
ERABRTWIS7	7" for tubing 1 ¼" – 2 500 pkg
ERABRTWIS8	8" for tubing 1 1/2"- 2 500 pkg
ERABRTWIS10	10" for tubing 2" – 2 500 pkg
ERABRTWIS12	12" – 2 500 pkg
ERABRTWIS14	14″ – 2 500 pkg



ERARBRTWIS6

Splices & Gripples

	Product No.	Dimensions
50	ERAEPISS9	Splice for #9 wire (per pair) - Orange
/box	ERAEPISS10	Splice for #10 wire (per pair) - Black
	ERAEPIT9	Head splice #9 (per unit)
	ERAEPIT-10	Head splice #10 (per unit)
	ERAGRIP12	Gripple #12 850 lbs - Medium
	ERAGRIP9	Gripple #9 1200 lbs - Large
	4724	Gripple #12½
	ERA412PINGRIP	Gripple pliers



ERAGRIP9

Á

ERA412PINGRIP

ERAEPISS9



Lag Bolt with Insulator 4722

Wire tensioners

Product No.	Description	- Ct
4727	12 ½ or 9 Ga. Wire Tensioning Device	-
4730	Stainless steel tensioning device. Ideal for 11/4"+ mainline	de





Tension grip

Product No.	Description
ERATENSION-3/4	3/4"
ERATENSION-1	1"
ERATENSION-11/4	1" 1/4
ERATENSION-11/2	1" 1/2
ERATENSION-2	2"

PRUNO TOOLS

Spout pullers



Aluminum spout puller				
ERA41271824	15"			
ERA41271827	27"			
ERA41271836	36"			
ERA41271828	48"			



Double hybrid spout puller				
ERA412718401	15"			
ERA412718402	27"			
ERA412718403	36"			
ERA412718404	48"			





Steel double spout puller, pocket-size 8" ERA41271854



Universal 15" spout puller ERA412718561

PLIERS & ACCESSORIES



Automatic tension cut vacuum plier ERA41271919



Deluxe installation pliers with knife and flaring

ERA41271101



Manual cut vacuum plier

FRA41271921



Deluxe installation pliers with knife ERA41271106



Stainless steel wire tie installation hookERA412719270 - 1^{1/4^{II}}ERA412719280 - 2^{II}



Aluminum wire tie installation hookERA412719260 - 1^{1/4}"ERA412719250 - 2"

*To use for mainline broaching on galvanized wire



PRUNO TOOLS



PLIERS



Compact plier with blade ERA41271050



Light tubing plier ERA41271109

MAINLINE PLIERS



Mainline pliers ERA41271500 3/4" - 1" ERA41271510 1" - 1-1/4" ERA41271520 1-1/4" - 1-1/2" ERA41271530 1-1/2" - 2" ERA41271532 1"- 2"

PUNCHES



ERA41271300



Green bit for mainline punch - 15/32" 47720



Deluxe installation tool (without blade and flaring) ERA41271130



4 function stripping plier ERA41271210

3/16" TOOLS



Compact insertion pliers with knife 3/16" ERA412710501





Automatic adjustment repair tool ERA41271401



Compact insertion pliers 3/16" ERA412710551

Compact insertion pliers 3/16" ERA412710651



Red drill bit with handle 31/64" ERA41271301



Yellow drill bit with handle 5/16" ERA41271331



Green hole punch tool 15/32" for 820 & 821 ERA41271310

Light tubing plier with blade

Manual adjustment repair tool

ERA41271108

ERA41271441



ERA41271302

Drill bit 15/32" ERA41271312



Green drill bit with handle 15/32" ERA41271311



LOAC TOOLS



SPOUT PULLERS



HAMMERS



ERA412914

PLIERS



Universal installation clamp plier 5/16" aluminum

ERA412941



Cut flow plier ERA412943





ERA412911



Universal plier 3/16" ERA412942





Food-grade lubricant 120 ml ERA412904



Spout puller (all sizes)					
ERA412921	20" (XS)				
ERA412922	22.5" (S)				
ERA412923	30" (M)				
ERA412924	40" (L)				
ERA412925	48" (XL)				
ERA412926	60" (XXL)				

SPARE PARTS

ERA4129

ERA412940-1

LOAC repair parts	
ERA4129	Foam handle
ERA412940-1	3/16 & 5/16 blade
ERA412940-2	LOAC magnet for plier
ERA412940-3	Bolt
ERA41294	Spring
ERA412LPIPBCPP	LOAC plier spring

Mainline Tubing Spooler

NEW!



FITTINGS & KITS

STAINLESS STEEL FITTINGS

High Quality Food Grade Stainless Steel for longevity. Install it and forget it.



S/S Barb Tee

BARB DESIGN (1) Concave barb wall to grip and pull tubing, maximizing hold especially under tension. Razor sharp edge and one way seal to creating a superior seal under vacuum.

BARB COUNT (2) Added barb layers eliminate the need to double clamp, and eliminate any chance of lines slipping off fittings under tension.

THIN WALL (3) Thin walls reduce thaw cycling time and improve flow, while minimizing the chances of ice buildup.



S/S Barb Coupling



S/S Barb Adapter x MPT



S/S Barb Reducing Y



S/S Y



100% stainless steel heavy duty clamps



S/S Barb Y



S/S Ball Valves with Barbs



S/S reducing coupler



Stainless steel reducing tee



100% stainless steel clamps



Stainless steel end hook



Stainless steel male adapter, ins. X MPT



Stainless steel sanitary quick connector (alone or in kit)

FITTINGS & KITS

MAPLE SUGARING KITS & SAP COLLECTION



Bucket maple sugaring kit - 10 taps ERA-SIROP10

TIRED OF PICKING UP BUCKETS?



Tubing maple sugaring kit - 60 taps ERA-SIROP60



12V Pump SHUMA532-12V

TRADITIONAL SAP COLLECTION



5/16" Tree Saver spout ERAPB-TSS | 5611



Sap bucket - 2 US gal. (8 3/4" dia.) ERAPB2-PSB



Sap bucket - 3 US gal. (8 3/4" dia.) 5609



Sap bucket cover (10" x 10") ERAPB-PSBL-2 | 5610

FITTINGS & KITS

FLAT WOODS & LIFTING SAP

UTILIZE 3/16" TUBING AND H2O SADDLES TO IMPROVE SAP LADDERS

Nick Wendel of Wendels Maple and More, in East Concord NY, has been using H2O Innovation saddles and Leader 3/16" tubing to lift sap with vacuum and increase flow with the smaller diameter tubing. Sap lifts of this kind can be an effective way to get sap out of the woods when trees are below grade.

Lift sap up to 16 feet!



Check out the video on our YouTube channel!



MAINLINE STARS - SAP LADDER FITTINGS

QUESTIONS

ABOUT LIFTING SAP?

ASK AN EXPERT, WE'RE HERE TO HELP!



3-way star 5/16" x 1/2" NPT ERAMJM753



4-way star 5/16" x 1/2" NPT 4765



6-way star 5/16" x 1/2" NPT ERAMJM756 4765A



 End caps for mainline fittings

 4766
 5/16"

 ERAH20736
 5/16"

 4766A
 1/2"



Mainline plugs



Y (plastic)



Mainline Tee

Maple Game Changer

SUGARING GOTS ITS CLAWS into

Mark Erlsten about 40 years ago, after a family vacation in Vermont. He was nine or ten years old and the family was driving down Route 7 when they stopped and bought some syrup and spouts, then tapped a tree when they returned home to Galleon, Ohio.

"It was the proverbial boiled it on the stove and the peeled wallpaper and all that good stuff..." Erlsten says, "to make something that kind of resembled maple syrup. Kind of runny sweet water was more what it was than maple syrup." The family had a property in Mauro County, about ten miles south of Galleon, where Mark had grown up. And so, the following year, Mark and his brother started to up their game.

"We tapped some trees there," Erlsten says, "and boiled sap on a copper kettle outside, and then it continued to evolve. We made a little lean-to shack and boiled in that one year. And then, when I was a sophomore in high school, we built a sugarhouse back in the woods that we still use as a pump station to this day. We bought a 3'x10' Grimm Lightning evaporator with fiveinch flues, and we boiled on that for three or four years."

Erlsten was just a year or two out of high school when he and his brother started selling Grimm equipment from their barn shop – just a year before Leader bought Grimm in 1989. When that transition happened, the brothers were taken on as a Leader dealer. A decade later, Mark and his fiancé bought some land east of the family property and built a new sugarhouse in 2000, and then a store addition in 2011.

All told, the Erlstens harvest from about 2500 taps – a rather large operation for Ohio, and they boil on a Leader 30"x10' reverse oil-fired evaporator with Steam-Away. The property, Erlsten says, "falls in three directions... We're right in the area where it changes from water going north [to Lake Erie] and water going south [to the Ohio River]... We have a lot of different terrain change."

As a result, every tap is on vacuum, and three years ago they added H2O monitoring, starting with a basic setup and a few monitors. It worked so well that, Erlsten says, "we got everything monitored as of last year."

"I will tell you," he says, "that it is a game changer. The trips to the other woods that saves me... the ability to get vacuum up and going fast at the beginning of the season." That first year of full monitoring, he says, when it finally thawed out, he was able to get the whole sugarbush tubing system "up and working functioning decently" in about an hour. Before that, he says, "it would've taken me half a day to track everything down easily." Yes, you still have to put your boots



on the ground, he says, but it is a huge help. "There is an immediate response when something goes wrong," he adds, "when a limb hits or whatnot... The value in it is tremendous."

And, Erlsten continues, "one of the things that needs to be emphasized... is how accurate it is compared to a bunch of the other systems out there... The system's tolerance isn't half to a full inch of vacuum. It's like a tenth of an inch of vacuum tolerance on their sensors. And I think that's a huge deal."

In addition, one of the unexpected things he says that people find is that H2O Monitoring helps users "find flaws in your system – design flaws. You find where there's sags in your system that you never knew were there before... you learn a lot about your system once you have it, you really do."

"That doesn't always help the ego," he laughs. "But honestly, it's almost like having another employee, but they're willing to work seven days a week, 24 hours a day, and they don't take any pay other than the initial setup fee."

And that fee is approachable, he says, because you can get the starter pack, then add to the system as you are ready. "You don't have to do everything at once, but, you know, as I found out pretty quick, starting off... it pretty quickly comes around to like, 'man, this is worth it, this is worth just doing the whole thing.'"



Annie Erlsten (@annierlsten_art) painting a maple bucket.

He says he used to take up to 10 trips a day to his sugarbush (a mile away) to check things out, which got tedious. "But now I sit at my desk and know exactly what is going on. It's fly-by-wire, and it's definitely been a game changer for us."

Because when there is less time doing maintenance, there is more time to focus on the more enjoyable parts of sugaring.

"You know what?" Erlsten says, "I like everything about maple. I truly believe that we make the greatest food product in the world... And I enjoy it all. I really do. I enjoy the people I've met that are in maple... it's a fairly close-knit community." His oldest daughter, Annie, has also caught the maple bug, Erlsten says. "She has her own sugarhouse, and [2023] was her last year, because she'll be going to college... I think she was maybe ten when we built that little building and put in a little Half Pint Evaporator, and then she makes and sells syrup." Annie is considering a degree in art education or art therapy, and has combined her interests by creating an interesting new art form: painting on old maple buckets.

"I told her this is her last year of her sugarhouse," Erlsten says. "If she's ready to do more maple, she can start working in the big sugarhouse now."

LEADER 30" X 10' REVERSE OIL-FIRED MAX REVOLUTION WITH STEAM-AWAY EXTREME 2 HC RO H20 MONITORING SYSTEM





Visit our YouTube channel to see a video about this sugarmaker.

STARTER KITS

The starter kit is the heart of your monitoring system. The long-range gateway acts as a base, receiving all information from the network. The electronic tablet displays the data with a proprietary application. The system works without a Internet connection or a cellular network. To use the new 3.0 Web Platform, connect the tablet to a WiFi network. This way you will be able to access your system from outside your sugarbush and enjoy the most advanced features of the 3.0 Web Platform.



H20 MONITORING PREMIUM

- Starter kit including long range gateway, electronic tablet and programmation
- ✓ Vacuum sensor
- ✓ Indicating outside temperature
- ✓ Ultrasonic tank level sensor
- ✓ Control remotely 2 electrical devices
- Many inputs for optional readings (water meter, ampmeter, mechanical meter)

SMART-CONTROL

- Electronic tablet
- Long range gateway
- Vacuum sensor
- Indicates outside temperature
- Multifunction control sensor to remotely activate 2 electrical devices
- Many inputs for optional readings (water meter, ampmeter, mechanical meter)



SMART-STATION

- Electronic tablet
- Long range gateway
- Vacuum sensor
- Indicates outside temperature
- Ultrasonic tank level sensor



Electronic tablet
Long range gateway



VACUUM SENSORS

The vacuum sensor records the vacuum level in real time. It allows you to quickly identify problems in your tubing network so that you can fix them directly. Each sensor is equipped with Spidermesh technology and acts also as a signal repeater.

Avaiualbe in single, double, and triple port sensors.



SIGNAL REPEATER

The repeater is used to repeat signals in your system. You can use it to extend your signal where there is no mainline to monitor. It is also used to cross a long distance. Indeed, in direct line of sight, 2 nodes can be more than 4 miles apart and communicate between them without issues.

MULTIFUNCTION CONTROL

The multifunction control allows you to remotely control two different electrical devices (vacuum pump, transfer pump, electrical valves, etc.).

This device also collects other important information for the maple syrup producer, such as the readings of a water meter, the amperage of a motor and the status of a mechanical float.

SAP LEVEL MONITORING

TRADITIONAL SAP TANK

The tank-level sensor measures the level of sap by using ultrasound. There is no contact with the sap.

SAP/SILOS / CLOSED TANK

The piezometer reads the pressure of the water column, to give you an accurate reading of the level above it. You merely need to drop the probe in the bottom of your silo or any other closed tank to get your data. A tri-clamp probe is also offered to avoid having a probe inside the silo.

Ultrasound tank-level sensor is not recommended for a silo or a close tank



SIGNAL STRENGTH - BLINKING

A good rule of thumb to help you with your setup is to use our basic communication distances (see table at right). By avoiding dense forest, softwoods ,and ground obstructions, you will optimize your signal strength.

You can also take advantage of your topography, fields and even forest trails to cover greater distances. Remember that the less obstruction there is between devices, the stronger will be the signal and the longer the distance you can transmit.

Installation height is also a factor that can affect communication strength. Mount your sensor high up for a better connection.

Environment	Range (from node to node)
Direct line of sight, wit- hout obstruction	8 km / 5 miles
Line of sight, with obstruc- tion (small branches)	2-8 km / 1.25-5 miles
Harwood (sugar bush)	300m / 1000'
Softwood or dense forest	200m / 650'

INSTALLATION TIPS & TECHNIQUES

GETWAY SET-UP

When you install your system or work on your signal strength, you can change the duty cycle of the gateway and set It to "Fast +" mode (20% duty cycle). You can also modify the "Hop Count" by increasing it to 20 hops. By doing that, your gateway will work faster and also stronger (for long distance/large number of sensors). Also, in "Fast +" mode, your gateway will blink faster, and this will help you determine if signal is strong or not through the blinking of your device.

SIGNAL STRENGTH - BLINKING

You need to create your radio signal network by installing your nodes, starting with the one closest to the gateway. After that, always install the next node closest to the one just installed, to make sure that you have a strong signal, and all the nodes are interconnected.

When installing in the sugarbush, it is important to verify that your node has a strong signal on your network. To do that, check the blinking of the LED on the power button of the node. It must be constantly blinking (it blinks at the exact same time as the gateway).

To confirm that you have a good signal, you must have 20 blinks in a row (without interruption). If you have this, your node is communicating well with the network. You can now continue with installation of the next node.





fig. 1: Two nodes communicate with each other at a distance of 1 km / 3300'



fig. 2: Two nodes communicate with each other at a distance of 300m / 1000'





Technical information: 0.5 HP pump = 4.6 AMP at 230V | 1 HP pump = **8.6** AMP at 230V



ERARELH201230HVC-HM

ELECTRIC EXTRACTORS 18"x 36" VERTICAL

1836 Vertical Extractors

For bigger sugarbushes, the 18" models can go up to 20 000 taps. Available either horizontal or vertical and ranging from 1 to 4 pumps, these very sturdy extractors are designed to offer high vacuum efficiency that will meet your high yield expectations.

Available with or without manifold, each extractor's capacity depends on the number of pumps the model has. Each of these pumps is made for approximately 5 000 taps. Each manifold is now designed with a plastic screen to protect the extractor's mechanical components.

BENEFITS

CONTINUOUS VACUUM EFFICIENT & RELIABLE EASY MAINTENANCE

PART #	ORIENTA- TION	EXTRACTOR SIZE	PUMP SIZE	MANI- Fold	INLET HEIGHT	INLET HOLES (THREADED)	NUMBER OF PUMPS	SPEED & LIFT	TAPS/ PUMP	MAX TAPS
1236	Vertical	12" x 36" (6"x27"manifold)	1/2 HP Standard (1 HP optional)	21" (27" w/ manifold)	2x2" (5x 1/4" manifold)	1			2500- 3500	
1230	Horizontal	12" x 30" (6"x27" manifold)		rd NO/YES I)	21" (24" w/ manifold)	511/4"	1	1/2 HP - 15gpm 10ft lift (1 HP - 15gpm 30ft lift)	2500- 3500	2500- 3500
1836	Vertical	18" x 36" (8"x36" manifold)			21 1/2" (34" w/ manifold)	2 x 1 1/4" (6 x 1 1/4" w/manifold)	1, 2, or 3			7500- 10500
1836	Horizontal	18" x 36" (8"x36" manifold)			23 1/2" (31 1/2" w/ manifold)	6 x 1 1/4"	1, 2, 3, or 4			10000- 16000



ELECTRIC EXTRACTORS 18"x 36"& 18"x 48"HORIZONTAL

1836 Horizontal Extractors



Plastic screen included with the manifold to prevent ice from blocking the pump

ERARELH201836HVC-H3M



Product No.	Orientations	Extractor Size	Pump Size	Mani- fold	Inlet Height	Inlet Holes (threaded)	# of Pumps	Speed & Lift	Taps per Pump	Max Taps
1236	Vertical	12"x36" (6"x27" manifold)			21" (27" w/manifold)	2"x2" (5"x1¼" manifold)	1			2500-3500
1230	Horizontal	12"x30" (6"x27" manifold)	1/2 HP Stan- dard (1 HP optio- nal)	No/Yes	21" (24" w/manifold)	5"x1¼"	1	1/2 HP - 15gpm 10ft lift	2500	2500-3500
1836	Vertical	18"x36" (8"x36" manifold)			25 ½" (34" w/manifold)	2"x1 ¼" (6"x1¼" manifold)	1,2,3, or 4	(1 HP - 15gpm	0000	7500- 10500
1836	Horizontal	18"x36" (8"x36" manifold)			23 ½" (31 ½" w/manifold)	6x1 ¼"	1,2,3, or 4	30ft lift)		10000- 16000



VIPER ELECTRICAL EXTRACTORS







VIPER EXTRACTOR

Made entirely of stainless steel, this is the absolute pinnacle of extractors on the market. Pump capacity can easily be expanded from 1 to 4 pumps, allowing you to grow your operation in place. Designed for high, continuous vacuum operation, the VIPER is a must have for serious sugarmakers.



Stainless steel extractors with integrated washing system

Product No.	Description	Dimensions	Capacity	Pumping elevation	Sap inlet height	Input
ERARELV1	1-pump VIPER s/s extractor 0.5 HP, 5 000 taps	48'' L x 46'' H x 20'' P	28 inHg	10 feet	37"	4 x 2''
ERARELV2	2-pump VIPER s/s extractor 0.5 HP, 10 000 taps	48'' L x 46'' H x 20'' P	28 inHg	10 feet	37"	4 x 2''
ERARELV3	3-pump VIPER s/s extractor 0.5 HP, 15 000 taps	60'' L x 46'' H x 20'' P	28 inHg	10 feet	37"	4 x 2''
ERARELV4	4-pump VIPER s/s extractor 0.5 HP, 20 000 taps	72'' L x 46'' H x 20'' P	28 inHg	10 feet	37"	10 x 2''

ELECTRICAL & MECHANICAL SAP EXTRACTORS

Product No.	Dimensions	Tap capacity	Manifold	Sap inlet height	Vacuum pump outlet
VERTICAL					
ERABER211	Vertical double 8" x 16"	1 000	6" x 18" 4 x 1"	2 x 2" 18" High	11/2"
64236	Vertical double 12" x 18"	2 500	6" x 27" 4 x 1"	2 x 2" 18" High	11/2"
HORIZONTAL					
ERABER218	Horizontal double 12" x 18"	4 000	6" x 36" 8 x 1" 1/4	2 x 3" 20" Hiah	2"





ERABER211



ERABER218







Stainless steel releaser support for tank (adjustable height) *other tank width available on request		
Product No.	Dim.	
PFHSUPREL48-AJUST	48"	
PFHSUPREL60-AJUST	60"	
PFHSUPREL72-AJUST	72"	



Universal Releaser Support

Sits on top of 49" wide Leader Stainless Steel tanks. Allows releaser to be recessed in the tank, to reduce splashing.

Product No.	Dimensions
570000	49"

AIRABLO Electrical Horizontal Extractors

Product No.	Dimensions	Tap capacity	Manifold	Sap inlet height	Vacuum pump outlet
66314H	1-pump Airablo horizontal extractor 1 HP	5000	6" x 12" 4 x 1"	1 x 2" 20" High	11/2"
66314	1-pump Airablo horizontal extractor 2 HP	10 000	6" x 18" 4 x 1"	2 x 2" 18" High	11/2"
66314D	2-pump Airablo horizontal extractor 2-2 HP	15 000	6" x 36" 8 x 1" 1/4	2 x 3" 20" High	2"

PLEASE ASK ABOUT OUR VFD OPTIONS

For use with high vacuum systems. Designed for use at 28" Hg. Now available with VFD.

MOISTURE TRAPS





Vortex moisture trap from H2O Innovation is a high security product that protects your vacuum pump. It isolates the most important element of your pumping station against water and humidity, even at high vacuum.

VORTEX technology captures water and moisture particles to redirect them to the bottom of the trap. Equipped with a float, the Vortex moisture trap will automatically stop your vacuum pump when the sap level is problematic. After stopping the pump, it can drain by itself, then restart the vacuum pump.

By its robust design, the VORTEX moisture trap is an essential accessory to have in your pumping station.



ERARELTR1227P

VORTEX moisture trap

Product No.	Description
ERARELTR1227	Vortex electric moisture trap 3" output, with foam 12" x 30"
ERARELTR1227P	Vortex electrical moisture trap with safety kit

Standard moisture trap

Product No.	Description
ERARELTR827	Single moisture trap 8" x 27", 2" output
64192	Moisture trap 10" x 24" - CFM rating 60
64182	Moisture trap 10" x 24" electric - CFM rating 60
64191	Moisture trap 15" x 30" - CFM rating 130





All in Ontario Maple

THE FOUR TOMORY Brothers – John, Ben, Tony, and Eugene – were all engineers working in Toronto when they hatched a dream to chuck their day jobs and build a sugaring business together. They had grown up on the family farm, says John, "hanging buckets from trees... collecting sap, boiling it on an old school evaporator, and doing it strictly as a hobby."

When the family bought a second farm in Uxbridge, about an hour outside Toronto, they decided to develop its 40 acres of sugarbush, adding that to the 12 acres on the family farm. "Once we had established the sugarbush in Uxbridge," John says, "it was scratching an itch, let's say, and the itch didn't go away. So from there, we were able to get access to other local forests and tap those as well."

7'X20' OIL FIRED FINISHING RIG 1 - SUPRA 8-MEMBRANES 2 - SUPRA HIGH BRIX 12-MEMBRANE UF ULTRA FILTRATION 6-MEMBRANE 20" FILTER PRESS H2O MONITORING SYSTEM When it came time to purchase new equipment to meet their growing needs, the brothers turned to H2O. "From the first meeting," John recalls, "we really hit it off and H2O in fact offered us a distributorship."

The brothers have an H2O Evaporator, a Hi Brix finishing evaporator.

At the initial stage, the Tomorys decided that John would be the first to quit his day job to manage the growing operation. Within five years, the business had grown to where it is now, managing over 1000 acres of rented and purchased sugarbush. And so a second brother, Ben, quit his day job to join the operation full time.



UXBRIDGE, ONTARIO





In addition to having reached 35,000 taps in 2023, expanding with a further 20,000 taps in 2024, and selling H2O equipment, Pefferlaw Creek Farms also seeks to be something of a tourist destination.

"We have a beautiful building here," John says, "and we want to bring people to our farm to show them our passion for maple syrup and bring maple syrup to people's tables... With our Maple Syrup Festival that we have on weekends, we bring hundreds of people here... they'll be able to take the maple syrup, and put it on pancakes fresh, straight from the evaporator..."

Needless to say, the brothers have great aspirations for their business. "I wouldn't say that becoming one of the largest producers in Ontario has been our goal," John says, "but we're well on our way, and we do hope over the next couple of years that we might get right to the top."





You Tube Visit our YouTube channel to see our video about Pefferlaw.

Leak Detection – Tips from the Pros

PUMP STATION

GAUGES – always have more than one gauge, they tend to read differently.

SOUND/PITCH/HEAT OF PUMP – Air temperature changes when leaks are present causing pumps to react differently or act as if "under a load" when the lines are tight.

MOISTURE – Air leaks in system may compound moisture in the system and cause additional need for draining the oil from vane pumps.

You can also check the vacuum pump – when pump is on and at max vacuum. Shut off the pump, watch how long it takes for the gauges to drop. If the system is tight, it will hold for some time. If the system has leaks, it will drop immediately.

H₂O MONITORING

VACUUM MONITORING OFFERS AUTOMATIC LEAK DETECTION

- ✓ Proven technology
- Immediate Response Detect and find leaks immediately when they happen
- ✓ Reduce Labor Producers reduce labor costs and time spent looking for leaks by 25-50%.
- ✓ Track Identify line freeze and thaw cycles and problem areas in your woods with data reports.
- ✓ Make More Sap every 1HG of vacuum increases yield by 5%

For more details on H2O Monitoring, see pages 36-39.



Manual Leak Checks

RECOMMENDED ORDER WHEN CHECKING FOR LEAKS

- 1. Start at the pump house
- 2. "Dead Head" lines check vacuum
- 3. Check from vacuum pump to releaser
- 4. Check from releaser to woods open one line at a time

WHAT TO LOOK FOR ON YOUR RELEASER AND EXTRACTOR

- ✓ Ice Shards most likely from sap line leaks.
- ✓ Ice ball in base built up in incoming freezing lines, or improper drainage from a freeze up
- ✓ Bubbles under liquid: leak in seal or cap in releaser/extractor
- Slugs of sap Sap lines in woods sagging under grade or undersized
- ✓ Spitting inside releaser: Leaks in woods, may also hear a sound
- ✓ Uncontrollable break loose Leaks in system that is freezing lines prematurely amplifying the thaw sap volume
- Sticking parts/floats releasers/extractors need to be lightly greased every year before use as sugar binds parts.

VALVES ARE KEY FITTINGS FOR LEAK DETECTION

- ✓ At releaser to isolate lines
- In woods installed at every mainline before entering W/D lines or releasers
- How to use: Shut off valve for a few seconds, slowly open and listen for air sound. If you hear a sound,
- ✓ leak in line. If it's silent, move on to next line.
 Lines can be walked faster using this method

Leak checking on lateral lines is a bit of an artform: Start by listening – good ears will generally hear moderate leaks. Very small 5/16" leaks are mostly silent. Large "wide-open" leaks can also be silent.

Look for signs of leaks. Walk mainlines checking "loops" from lateral lines. Creating a sag in soft lateral line at loop can assist with leak detection.

Look for "jumping" of sap over the created sag. A leak can also be detected by accelerated sap movement, as sap in 5/16" lines moves very slowly when tight. If woods is thawed and sap is running, the presence of no sap at a tree is generally caused by a leak. Excessive bubbles at fittings or tree can also signal a leak.



Vacuum Pump Know-How

MAXIMIZE VACUUM

Reduce elbows in vacuum lines, as every elbow contributes to vacuum loss. Tigerflex or large, flexible food grade vacuum tubing is a good option to tie stiff lines to vacuum pump. Minimize the length of vacuum line from the pump to the releaser, as that can contribute. to loss. Remember – the enemy of vacuum is long, undersized lines, and poor sugarbush management. If you want high yields, take care of your system.

RECOVERY

Pump size recommendations are in alignment with adequate leak control practices. Pick the right size pump for your bush. Oversizing a pump to overcome poor leak control practices will freeze lines faster.

PROTECT YOUR PUMPS

Most pumps on the market can't take moisture, especially slugs of sap. Always install a factory moisture trap. Eliminate incoming lines sagging below grade from the pump, as this can cause unnecessary freeze points. Keep your woods tight, as poor vacuum will lead to freeze ups and increase the chances of sap backing up during thaws. Build a pump house or storage space undercover, as electronics generally aren't waterproof and can't be exposed to the elements.



TANK VOLUME

How much raw sap storage do you need?

Gravity Systems: 1 gallon per tap 20" Vacuum: 1 ¼ gallons per tap 25"+ Vacuum: 1 ½ gallons per tap

Undersizing your sap storage can be costly if your tank overflows.

VACUUM KIT



CHOOSE YOUR PUMP

- Dimensions: 73" H x 58" L x 23" D
- Robust steel skid
- VORTEX moisture trap
- VFD or Starter
- All connections included

OPTIONS

- Start & stop with Thermostat
- Antifreeze automatic modulating of vacuum
- Safety kit for vortex moisture trap
- H2O Monitoring vacuum sensor



Maintain high vacuum levels while avoiding pump station disasters, as the Antifreeze sensors detect when temperatures dip below a desired set point. The Antifreeze will automatically reduce and precisely control vacuum levels at the pump.

Product No.	Description
Z100105	Automatic vacuum control - ½" valve for 1.5HP to 10HP single phase motors (controlled leak)
Z100110	Automatic vacuum control - 1" valve for multiple pumps system - single phase motors (controlled leak)
Z100507	Automatic vacuum control - 2" valve for VFD with 3-phase motors (controlled vacuum)
Z100507GHS	Automatic vacuum control - for Atlas Copco GHS pump (controlled leak)



INCLUDED

- ✓ User friendly controller
- ✓ Motorized valve
- ✓ Temperature probe with 23-foot cable
- ✓ Vacuum transducer

KWIK PUMPS



KWIK- HIGH PERFORMANCE VACUUM PUMPS

The KWIK pump is an oil rotary vane vacuum pump. This type of vacuum pumps is now commonly used for several reasons:

High performance pumps: Oil rotary vane vacuum pumps can generate relatively high vacuum levels, which is in direct relation of sap yield. In perfect conditions, a KWIK pump can achieve the ultimate vacuum level of 29.9inHG. In the real life of a sugarmaker, the KWIK pump is capable of reaching 28.5inHG.

Oil Sealing Mechanism: The oil used in these pumps serves as a lubricant and a sealing medium, which helps prevent backflow of air and maintains a proper vacuum level. This sealing mechanism is well-suited for applications where a consistent and reliable vacuum is needed, such as in maple tubing systems.

Ease of Maintenance : While some maintenance is required, oil rotary vane pumps are relatively simple to maintain and repair. Regular oil changes and basic maintenance procedures can keep them in good working condition. You should change oil after the season using ERAOIL-80-4 (refer to the table for qty). You should also change the oil filter AIR01280534.



KWIK Rotary vane vacuum pumps -EMR Series Single phase 220V motor or Three phase 208V motor

AVAILABLE IN SIZES 2 HP TO 10 HP

INSTALLATION TIPS

- ✓ Oil rotary vane vacuum pumps should be installed where temperature is over freezing point. These pumps start and perform better when they are not frozen. Avoid installing them outside a building.
- Always install the exhaust in a downward slope to prevent any return of water to the pump.

AtlasCopco



GVS | Oil-sealed rotary vane vacuum pumps

The GVS series operates according to the proven oil-sealed rotary vane principle that has been successfully used for many years in all general vacuum applications, successful especially in the maple application where reaching high vacuum level results in greater sap yields. These pumps ensure the highest possible performance by its high quality design.



DZS Series | Dry claw stainless steel vacuum pumps

The DZS series are fully stainless steel claws, dry vacuum that offer simplicity, robustness, efficiency and contaminant handling capability, perfect for maple applications.





GHS | Oil-sealed rotary screw vacuum pumps

Clean, silent, and energy-efficient, the GHS series is the most efficient vacuum pump on the market.

High energy – the hot and cool zones isolate the heat producing components from electronic components ensuring longevity.

Environmentally friendly – Patented design for oil retention, retains oil at <3mg/m³, for optimal exhausted air quality. The silent components, canopy, and variable speed drive helps reduce noise levels.

GHS VSD is a plug-and-play solution, including an Elektronikon controller, cubicle, and canopy in a single, neat enclossure.

BUSCH & GAS VACUUM PUMPS



Busch rotary claw vacuum pump

The unique non-contacting, friction-free design reduces wasted energy from drag and friction. A factory installed and programed Variable Frequency Drive further improves energy efficiency.

In the pumping chamber, two "S" shaped rotors spin in opposite directions to create a void of trapped air that is compressed and discharged. A small, fixed gauge clearance is maintained between all moving parts. Due to this, there is no friction or wear, and oil is not required in the compression chamber for lubrication, sealing, or cooling.

Dry running non-contacting

- · High level of efficiency
- Oil-less compression
- Air-cooled
- Minimal maintenance
- Included complete with VFD
- Also available in single phase (special order)

Busch mink rotary claw vacuum pumps



Flood system with oil cooling kit

These rotary vane vacuum pump systems are driven by belt and pulley from a gas motor, and come with an oil reclaiming system to be installed on the exhaust of the vacuum pump. Unlike traditional drip oiling systems found on most rotary vane pumps the flood system injects a stream of oil into the housing to create additional lubrication, cooling, and higher vacuum.

FEATURES

- 27 inches+ vacuum levels
- Reclaims 95% of the oil
- · No heated rooms or constant water supply required
- Designed for the intense, 24-hour use of maple syrup producers

We service and repair vacuum pumps!



ALL AIRABLO PRODUCTS AND SIZES AVAILABLE

BOSWORTH MINI-VAC



Guzzler® BOSGE-0501N (120V)

FEATURES

- ✓ Single Diaphragm
- ✓ Up to 400 taps
- \checkmark 120 vac
- \checkmark 24 vdc available



BOSGE-0501N



Guzzler® BOSG2-0501N (120V)

Twice the capacity of a single diaphragm pump

B0SG2-0501N

CHARACTERISTICS

- ✓ Up to 28 in Hg (with wet valves) (up to 25 in Hg for 24 vdc pumps)
- ✓ Works without a sap extractor
- Works without a sap extractor
 Creates vacuum and transfers sap (can run dry or wet)
 Available with efficient 120 vac single phase motor or 24 vdc motor
 1-1/4 in NPT Female inlet/outlet hose connection
- ✓ Easy to use and maintain
- ✓ Ships with spare diaphragms
- ✓ Optional new longer-lasting diaphragm can last a season or more!

24V PUMP | AVAILABLE **ON REQUEST** (FOR BATTERY USE)

Spare parts

Product No.	Description
ERAP07090-02	Replacement Buna-N diaphragm
ERAP0G500	Replacement Buna-N diaphragm & Valve Set
ERAG500UVSSET	Umbrella Valve Set/Silicone (pair)
ERAPnnnnn-nn	Longer-lasting Santoprene diaphragm

NOTE: Recommended inlet filter for better service life of ERARONPREF diaphragms



Guzzler® BOSG4-0501N

FEATURES

- ✓ Four Diaphragms
- Up to 1,800 taps ✓
- ✓ 120 vac



YOUTUBE CHANNEL

DEMOS, TIPS AND TRICKS

Explore the YouTube channels for H2O Innovation Maple & Leader.

Filled with useful information, tutorials, and tips to increase your yields and maximize the value of your equipment investments.

We also regularly feature successful maple operations. Want to be a maple star? Reach out and let us know!





CUSTOM TURNKEY PROJECTS

Contact us first!

Our experienced design teams can help you create the maple operation of your dreams. Our skilled engineers, technicians, and industry experts have the tools you need to maximize your success, no matter the size of your operation.

Our team can help you with :

- Sugarhouse layout and design
- Tubing configuration and installation
- Product sizing
- Equipment startup and calibration
- Electrical components

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Our Dealers Can Help You Get Maple Done!

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387 County Rd. Woodstock, CT 06281 r.norman@snet.com 860-974-1235

Wilkinson Farm

10A Chesbro Bridge Road Columbia, CT 06237 mwilkins93@gmail.com www.wilkinsonfarm.com 860-228-0030

MAINE

Bacon Farm Maple Products, LLC 415 Goodhue Rd.

Sidney, ME 0433t0 207-547-5053

Dunn Family Maple

419 Chicopee Rd. Buxton, ME 04093 207-671-4262

Kinney's Sugarhouse

200 Abbott Rd Knox, ME 04986 kinneyssugarhouse@gmail.com 207-568-7576

Northwoods Nectar

1426 Sly Brook Rd. Eagle Lake, ME 04739 207-231-2265

Sawyer's Maple Farm

276 Long Pond Rd. Jackman, ME 04945 207-668-7705

Spring Break Maple & Honey

P.O. Box 190 Smyrna Mills, ME 04780 MaineMapleAndHoney.com 207-727-7373

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North Hadley Sugar Shack

181 River Drive Hadley, MA 01035 northhadleysugarshack@gmail.com www.northhadleysugarshack.com 413-320-2216

MICHIGAN

Hide-Away Sugar Bush P.O. Box 567 Mesick, MI 49668 hideaway@yahoo.com 231-885-2900

Northeast Michigan Maple Outfitters

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Sugar Bush Supplies

2611 Okemos Rd. Mason, MI 48854 sugarbushsupplies.com 517-349-5185

NEW HAMPSHIRE

Bascom Maple Farms

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Fuller's Sugarhouse

267 Main St Lancaster, NH 03584 FullersSugarhouse.com 603-788-2719

Somero Maple Farm LLC

21 Poor Farm Road New Ipswich, NH 03071 someromaplefarm@gmail.com 603-562-0822

Sunnyside Maples

1089 Route 106N Loudon, NH 03307 sugarmaker@aol.com 603-783-9961 603-848-7091

NEW JERSEY

The Maple Shop 105 Main St. Chester, NJ 07930 802-370-5541

NEW YORK

Cook's Maple Products LLC

247 County Road 20 Sherburne, NY 13460 cooksmaple@gmail.com 607-627-6252 607-371-3149

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Countryside Hardware

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John Wiggers & Sons

7700 NY-474 Clymer, NY 14724 WiggersNewHolland.com 716-355-2511

Mack Maple Supply

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Nathaniel Good

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Justus Asthalter Maple Syrup, Inc.

865 Aden Road Parksville, NY 12768 JustusMaple.com justusmaple@gmail.com 845-292-8569

Hamilton Wood

1400 County Rd 23 Chateaugay, NY 12920 518-497-6956

North Road Sugarworks

460 North Rd. Jefferson, NY 12093 bucksyrup@yahoo.com www.northroadsugarworks.com 607-652-3188

Sage Family Maple LLC

4449 Sage Rd. Warsaw, NY 14569 hamilton@sagefamilymaple.com 585-786-5684

Sample Lumber

53 Campground Rd. Mooers, NY 12955 SampleLumber.com 518-236-7788

Schweigart's Sugar Shack

804 County Road 103 Woodhull, NY 14898 george@schweigarts.com www.schweigarts.com 315-759-9890 302-236-8621

Shaver-Hill Farm

310 Shaver Rd. Harperfield, NY 13786 ShaverHillFarm.com 607-652-6792

Sprague's Maple Farms

1048 Portville Obi Rd. P.O. Box 488, Portville, NY 14770 716-933-6637

Widricks Maple LLC 21243 Staplin Rd Black River, NY 13612 315-775-4964

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Erlsten Bros. Maple Products 7630 County Rd 46. Mt. Gilead, OH 43338 mark.erlsten@zoominternet.net 419-362-6275

Fitch Pharm Farm

1591 Township Rd 1353 Ashland, OH 44805 FitchPharmFarm.net 800-956-2753

Grossman Family Farm

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11509 Holshoe Rd. Homerville, OH 44235 330-421-7975

May Hill Supply

10238 Dennison-Ast. Rd. Orwell, OH 33076 330-583-2892

Weaver Maple Supplies

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Hess Maple Supplies

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Johnson Maple Supplies

13380 Route 8 Wattsburg, PA 16442 glojo48@verizon.net 814-739-2007

Shemanski Maple Syrup

35A Belmont Street Waymart, PA 18472 shemanskimaple@yahoo.com wwww.shemanskimaple.com 570-488-5240 570-351-5074

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Corse Maple Farm

773 Corse Rd. Whitingham, VT 05361 CorseMapleFarm@myfairpoint.net 802-368-2420

Deer Ridge Maple

94 Cedar Crest Drive Derby, VT 05829 Jessicajudd76@yahoo.com 802-766-5447

Evan Perron

2580 Perron Hill, Glover, VT 05839 perronmaple64@gmail.com 802-525-3252

Gilead Maple Mountain

208 Skyview Lane Randolph, VT 05060 gileadmaple@yahoo.com www.gileadmaplemountain.com 802-234-5959

Goodrich's Maple Farm

2427 US Route 2 Cabot, VT 05647 goodrichsmaple@yahoo.com www.goodrichmaplefarm.com 800-639-1854, 802-426-3388 802-426-3418

Purinton Maple

190 Pond Rd. Huntington, VT 05467 PurintonMaple.com 802-434-4385

PVF Maple LLC

1368 Lincoln Hill Shrewsbury, VT 05738 sharrowmaple@gmail.com 802-492-3364 802-236-8105

Twin Brook Maple Farm

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E10833 Short Cut Rd Cashton, WI 54619

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613-433-4187

Hogan's Homestead

536 Second Line West Sault Ste. Marie, ON P6C 2K6 info@hoganshomestead.ca 705-246-7673

Pefferlaw Creek Farms

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SUGARMAKERS' GUIDE