

# News from the Sugar Camp

## Ennis Maple Products

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## What's New?

### 2010 Season Summary

Our 2010 season was our 2<sup>nd</sup> highest ever syrup total, but was down 20% from the bumper crop of 2009.

The quality of syrup produced was excellent with a lot of light, medium and amber syrup and even a bit of extra light on the first day!

The season started early with all 4,000 taps being installed on March 6 and 7 and our first boil on the 8<sup>th</sup>; our 2<sup>nd</sup> earliest start on record.

The weather during the season was very warm with only a few nights dropping below freezing.

Thankfully a few strong days just before Easter got us close to our goal of 1 L of syrup per tap. We consider ourselves lucky because producers in a large portion of the province

had yields between 0.25 L and 0.5 L per tap.

Our new equipment served us well this year. The Hurricane Force 5 evaporator processed more sap per hour than its predecessor and used 50% less wood! The quality of syrup it produced was excellent and we are extremely happy with it.

On two separate days we produced 500 Liters of syrup in a single boiling session! This would not have been possible with the old evaporator.

Our new syrup filter press was also impressive and was able to clarify large volumes of syrup in a short amount of time.

The Festival of the Maples was held in Perth at the end of April. Our maple products won 5 awards – a gratifying end to the season!



New Stainless Steel Tank in New Building



The Ennis Family at the Perth Festival of the Maples

## Food Safety and Traceability & Environmental Farm Plan

Over the past year we have been actively moving forward with our Food Safety and Traceability Initiative (FSTI). A lot of new equipment has been purchased and installed and we are working on standardizing our sanitation techniques and

record keeping. We have also started to batch code our syrup so it can be traced should a product recall be required.

In addition to the FSTI program, we have implemented an

Environmental Farm Plan. Our Lapierre Hurricane Force 5 evaporator was an eligible expense under this program as it significantly reduces greenhouse gas emissions compared to standard wood-fired or oil-fired evaporators.



New Syrup Re-Heating & Filling Unit



Installing new tubing. We have over 15 ft of 5/16" tubing for every tap in our woods!



The Leader Check Valve Adapter



Damage to sapwood from overtapping

*With current technology it is possible to produce over 0.5 US gallons (1.9 L) of maple syrup per tap – weather dependent of course!*

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## Maple Syrup Production in the 21<sup>st</sup> Century

Maple syrup production has undergone more changes over the past 10 years than in the 30 years prior.

A significant amount of research has been done at the University of Vermont's Proctor Maple Research Centre, Cornell University's Maple Research Program and Quebec's Centre Acer.

This research has led to a more thorough understanding of how maple trees produce and release sap, as well as how sap and vacuum flow in maple tubing and also the processes involved in the boiling of maple sap into maple syrup.

Just 50 years ago, if you wanted to make more maple syrup you tapped more trees, hung more buckets and made a bigger fire.

With the introduction of PVC tubing in the 1970's maple producers were able to tap more trees because the sap was all directed to a common collection point, thus decreasing daily labour requirements.

Adding vacuum to tubing systems increased the total amount of sap per tap substantially.

Few significant advancements in maple technology were made in the 1980's and 1990's. What was learned was that using up to 4 taps per tree was causing permanent damage to the trees.

Tapping guidelines were revised to a maximum 2 taps per tree to ensure the long-term health of the maple woodlot.

At one time, paraformaldehyde pills were used to keep tapholes from healing, thus extending the maple season. It is now a known neurotoxin and has been banned

since the late 1980's.

One of the significant advancements from around the turn of the 21<sup>st</sup> Century was the introduction of the 5/16" "health" spile. These taps have half the cross-sectional area of the traditional 7/16" spiles, meaning less physical damage is done to the trees by tapping them. We converted to 5/16" spiles starting in 2003.

Research was also completed regarding the effects of vacuum levels on sap production and tree health. Most maple producers had been using vacuum pumps intended for use in the dairy industry – capable of a maximum of 18" Hg. Research has shown that sap production increases by 5% for every 1" increase in vacuum level but does not cause additional harm to the tree.

Many maple producers are now using liquid ring or dry ring vacuum pumps that are capable of 25" Hg to 28" Hg vacuum. We have plans to purchase and install one of these pumps in the future.

In recent years a lot of research has been done on tubing installation, design and fittings.

The tubing that was initially installed in our woods did not allow for proper vacuum transfer to the tree. Mainlines were undersized, lateral lines to the trees were too long and there were too many taps on each lateral line.

Research has shown that separating the vacuum from the liquid in the mainlines using a 2-pipe wet/dry system, reducing lateral tubing lengths to 100 ft maximum and having

no more than 5 taps on each lateral line can double sap production! A lot of time has recently been spent in our woods to try to hit this lofty target.

Research has also shown that sap production decreases significantly as tubing systems age.

All our old PVC tubing has now been replaced with polyethylene (PE) tubing. The PVC tubing was difficult to clean and had to be removed from the woods each April and re-installed prior to the start of the following season. Over the past 3 years Marty and Andy have stretched over 70,000 ft of new PE tubing, which remains in the woods for its 15 year lifespan.

Most recently, research has shown that annual replacement of the spile that is hammered into the tree will increase sap flow over the course of the season.

By using the same spiles in the tree every year bacteria in the spile and tubing was found to accelerate taphole closure, thus decreasing yield.

Many one-time use spiles have now been developed by the maple industry. Leader Evaporator Company has developed a check valve spout adapter that is not only disposable but will prevent sap from flowing backwards from the tubing into the taphole.

Our own small scale test in 2010 resulted in > 25% increase in sap using the Leader check valve adapters. All our taps will be changed to the Leader adapters over the coming seasons.