



PROCTOR PAGE

News from the University of Vermont Proctor Maple Research Center

Some quick tips to achieve higher sap yield

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Increasing the yield of sap from maple trees is the goal of most maple producers. While getting there isn't a matter of one simple thing, by following best management practices and paying attention to detail it is possible to increase sap yields, often quite dramatically. To see an instructional video about each topic, visit the link after each paragraph or use your smartphone and the QR code.



Tubing System Design and Installation — To achieve good vacuum and sap transfer in tubing systems, producers should design and size their systems for peak flows. Undersized mainline or systems installed without adequate slope or with

sags will not perform well. Optimal mainline installations have 2-4% slopes with lateral lines running uphill from mainline. Even small sags will impact air and gas flow negatively. Lateral lines should follow the "strive for 5, no more than 10" taps per 5/16" lateral line recommendation. For areas with good slope and/or no available power to operate a pump, 3/16" tubing may be a good choice to develop natural vacuum. The selection of a pump and releaser system capable of achieving the desired vacuum level is also important to ensure you are able to get 1 CFM/100 tap out into your woods.

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Tapping — It isn't as easy as simply drilling a hole in a tree. Getting a good taphole in a good location is critical to achieve high yields. Start with a sharp bit designed specifically for maple tapping, and sharpen or replace it after drilling about 2,500 holes. Look over the tree closely for a spot where there are no defects, at least 2-4" side-to-side and 6-12" up-or-down from the previous year's taphole. Make sure it is in a position you are able to reach with the dropline. Assume a stable footing position and with the drill on a high-speed setting drill straight in-and-out in one smooth motion. Don't try to drill way over your head – this will produce oblong tapholes and vacuum leaks. The spout should be firmly seated in the taphole (go by sound and feel), but not be pounded in too deeply (which lowers sap yield). A hammer designed for maple tapping is recommended to avoid over-driving spouts.

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Vacuum — This relationship is pretty simple – the higher the vacuum the higher the sap yield. The effect is linear -- for each 1" Hg vacuum increase, maple producers can expect a 5-7% increase in sap yield. In general sugar content is not affected by vacuum. High vacuum also means that you can alter the recommended number of taps per tree. If you're pulling 25"+ of vacuum, a second tap doesn't produce more sap until trees are nearly 20" in diameter.

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Hitting Stained Wood While Tapping — How often do you hit stained (brown) wood while tapping? Stained wood does not conduct sap. Thus, every time you tap into non-conductive wood (NCW), you lose yield. More importantly – you're losing money. If you generally produce about 10 gal of sap per taphole and are hitting stained wood 5% of the time while tapping, you're losing a half gallon of sap per tap averaged across your entire sugarbush. That's the equivalent of dropping a quarter at the base of each tree just from hitting NCW while tapping! If your sap yields are higher, then your losses from hitting NCW are higher too.

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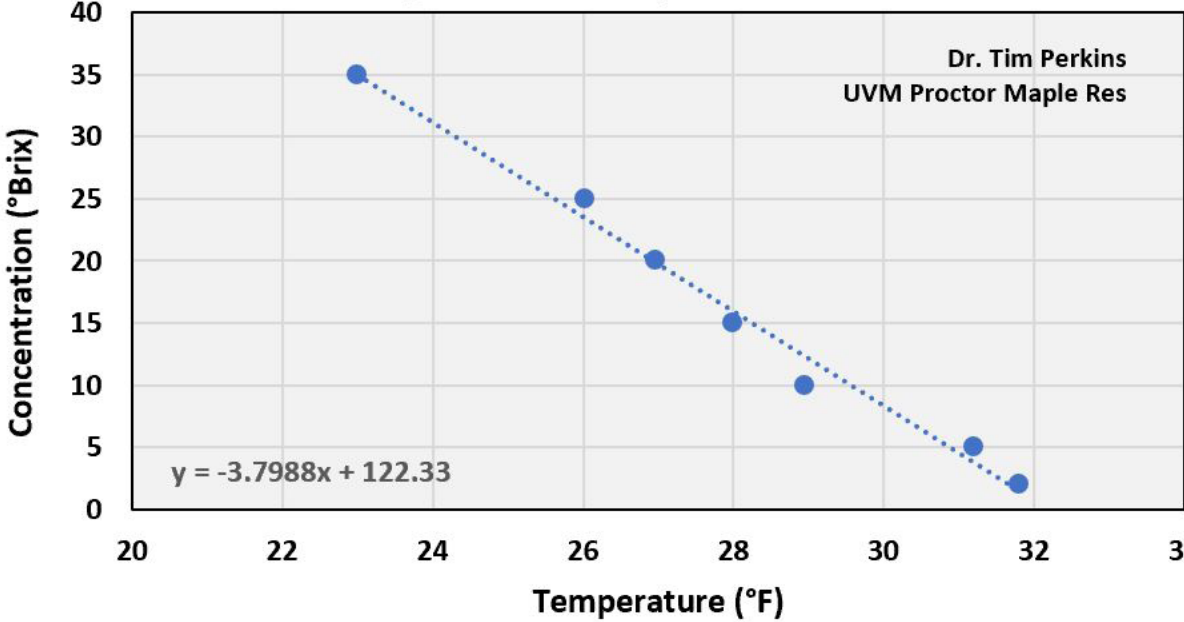


Spout & Dropline Sanitation — Better spout and dropline sanitation are associated with higher sap yields. However, it isn't just about getting more sap – it's a balance between getting the most sap possible at a reasonable cost, or the net economic profit.

Over a decade of work by researchers at UVM Proctor Center, Cornell, West Virginia, and in Canada have shown that Leader Check-Valve Spouts or Adapters are one of the most effective ways of doing this. Check-valve spouts and adapters produce some of the highest net profits of any spout available and alleviate the need to frequently change droplines to keep sap yields high.

<https://bit.ly/30zvflE>

Freezing Point of Sap/Concentrate



Taphole & Tubing Leaks — In order to maintain vacuum levels high, leaks have to be detected and fixed. Small leaks that don't seem to be important with gravity or low vacuum tubing are much more critical under high vacuum. Proper care during tapping as well as design, installation and maintenance of tubing systems is important. It's better to do it right the first time than to have to fix something over and over again. Whether producers use manual inspection or electronic monitoring devices, rapid correction of problems is vital.

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