

MAPLE PRODUCTION IN 2010 *reprinted from Farming, the Journal of Northeast Agriculture July, 2010*

This summary of the current state of maple production in New England is based on surveys returned from approximately 210 sugarmakers in April, 2010, following our recent sugaring season. Readers can refer to my column of December 2009 for the general format of this survey and previous results. This year's results come from a wide range of maple operations; for example, 18% of respondents had less than 500 taps, and 25% had at least 4000 taps. The majority of these reports were from Vermont, with a lesser number from New Hampshire, New York, and Connecticut; however I believe the trends across Vermont will reflect trends across most of the region.

In 2010 there was a wide gulf between the sap yields of sugarmakers who employed modern technology for sap collection, including vacuum, tubing systems of efficient design, and new spouts, and yields of sugarmakers who used less advanced collection systems and older materials. Producers who used vacuum for the majority of their sap collection averaged .33 gallons of syrup per tap; producers who collected their sap via buckets or tubing without vacuum (gravity collection) averaged .11 gallons of syrup per tap. While this separation between the sap yields of these two groups has certainly been observed before, the unusual weather of March 2010 greatly exaggerated the difference. The kind of season experienced by sugarmakers in the northeast this year, with few freeze thaw cycles and a rapid warm-up by late March, if continued, may make sap collecting by traditional methods almost unfeasible. Some producers using modern methods said that 2010 was one of their best years ever, while some using gravity collection methods claimed that 2010 was their worst year in several decades. As an example, in mid-March the trees at the University of Vermont Proctor Maple Research Center went 11 days without a freeze. Despite this, with good soil moisture present, and a modern tubing system using high vacuum, a moderate amount of sap was collected every day. During the same period, sugarmakers using gravity saw their sap flow almost cease 2 or 3 days after the last freeze. This pattern repeated itself throughout the season, until hot weather at the end of March caused microorganisms in the sap to multiply to the point where few people could make table syrup after the first few days of April.

Among the 60% of producers who used vacuum for all, or almost all of their sap collection, there were some large differences in yield according to the equipment used. For example, producers who employed a new plastic spout of any design for most of their taps made, on average, close to a tenth of a gallon of syrup more per tap than those sugarmakers with used plastic spouts for all their taps. Among vacuum producers with the best yields (over .4 gallons syrup per tap) 90% collected sap using a modern wet line/dry line conducting system, and 85% used a liquid ring vacuum pump, the type that could achieve the highest vacuum level. Among vacuum producers with the poorest yields (less than .3 gallons syrup per tap), far fewer used these innovations.

A large number of producers on vacuum tried out the new "check valve" spout on some or all of their tapholes. Some producers claimed that the spout helped their production, some claimed that it hurt production, and most did not know if it provided benefits in 2010. This year's sugaring weather, with the abrupt ending for almost everyone due to unusually hot weather, was less than ideal for evaluating a spout designed to extend a "normal" sugaring season. While many producers reported using the new spout without problems, many others reported problems with spout loosening, breakage, and in some cases the check ball lodging in the tubing system. Some of these problems could probably be addressed by more

robust manufacturing of the spout. Many producers who used this spout reported that its use took more time in tapping, tightening leaks, and washing, and will need evidence of increased sap yields in their woods before they are convinced that the spout is right for them.

There were a number of other trends reported in this year's data, some of which follow trends from previous years and some of which were new. Almost 60% of respondents reported tapping at least a few red maples. In all, of the over 770,000 taps from all participants in this survey, almost 1 out of 6 was in a red maple. Producers with a third of their taps on red maples finished sugaring at the same time, on average, as producers with no red maples, and they made about the same percentage of dark syrup as did producers with no red maples. Out of all producers, 21% said that niter in the evaporator was less than normal, 37% said it was more than normal, and the rest said the niter was about normal this year. Producers with more red maples were somewhat more likely to report high niter.

50% of all producers said that sap sugar content was lower than normal this year, 7% said it was higher than normal, and the rest said it was about normal. Many reported that sweetness started out normal and then became unusually low. The warm weather was probably responsible for this phenomenon; due to the long periods between freezes, trees had few opportunities to "rest," as sap sugar often rises after a significant freeze. Many producers in this survey were using reverse osmosis (including almost 70% of producers with vacuum) so that one of the main issues with low sap sugar, namely, too much fuel needed for boiling, could be overcome by pre-concentrating the sap.

Almost 30% of the producers in this survey reported the presence of invasive plants in their sugarbush. Among the most common of these pests were barberry, honeysuckle and buckthorn, and close to half of these respondents reported that the infestation was moderate to heavy. Readers of my columns may remember that invasive plants in the sugarbush are one of my real concerns; in Vermont they are currently a problem primarily in the southern counties and along the eastern and western borders of the state. With increasing yearly temperatures these infestations will likely get much worse for many sugarmakers.

Finally, sugarmakers in this survey were asked to comment on what they wished they had done differently. Apparently the weather took many sugarmakers by surprise; 56 producers said that they wished that they had tapped earlier. With research from the Proctor Center (see <http://www.uvm.edu/~pmrc/tapping.pdf>) showing that there is much to be gained and little to be lost by tapping before the "normal" date, it is likely that fewer sugarmakers will trust the long term weather report in the future. Seventeen sugarmakers who did not use vacuum in 2010 said that they may, or will use it in 2010.

The spring weather of 2010 may have been an anomaly, or a harbinger of spring weather for future years. Sugarmakers who are prepared for this kind of season, by getting ready earlier, and by embracing some of the technology that has been shown to maintain sap yields in years of warmer weather, will probably continue to have profitable businesses. Those who are unwilling to change or unable to afford some of the expensive new technology may be disappointed by future sap yields and resulting syrup production. Researchers will continue to try to find ways to overcome the negative effects of warm spring weather, but we all hope that the weather will return to the normal patterns that New Englanders expect.