

THE STATE OF THE MAPLE INDUSTRY—2011 *Reprinted from Farming, the Journal of Northeast Agriculture. July, 2011*

In 2011 many sugarmakers across the US maple belt celebrated a return to more traditional winter and spring weather after the short hot sugaring season of 2010. As of the time of this writing, the returns from various states have not yet been published by the National Agricultural Statistics Service (NASS), but it appears that syrup production was up from one end of the region to the other. This article will follow the theme of some of my previous columns and will describe trends reported in April and May 2011 in an annual survey of approximately 220 producers. Most respondents were from Vermont, with a lesser number from surrounding states. 55% of these sugarmakers said that 2011 ranked as their best year ever in terms of syrup production.

Vermont is not only the leader in US maple production by a wide margin, but also appears to have the greatest percentage of syrup produced using modern technology, as evidenced by minor drop in syrup production (3%) during the short season of 2010, compared to a 20% to 40% drop in the next largest syrup producing states (New York, Maine and Wisconsin). Most of the poor yields in 2010 came from operations with older sap collection methods, such as buckets and tubing without vacuum, which are much more subject to the vagaries of the weather and suffer in a season that is too warm or has too few freeze-thaw cycles. In this year's survey, using a more or less random selection of sugarmakers, there were operations with a wide range of sizes; out approximately 220 people reporting, 23% had less than 500 taps while 29% had at least 4000 taps. Thirty percent of the sugarmakers collected sap by gravity but together they made less than 2% of the syrup. The explanation for this is twofold—large operations are almost exclusively using modern technology, such as vacuum sap collection, and this technology resulted in much better sap yields. Producers using gravity for sap collection averaged .19 gallons of syrup per tap; producers using vacuum averaged .415 gallons per tap.

Although some people described this year's weather as an "old fashioned winter," one of the changes that has emerged in Vermont, as well as elsewhere in the maple belt, is the earlier start to sugaring season compared to a few decades ago. While the first sap is not always boiled in February, many Vermont producers have abandoned the traditional tapping date of Town Meeting Day (early March) and start tapping in mid-February or earlier. A major factor in this evolution is the increasingly large size of many operations, as it takes many weeks to repair tubing and tap thousands, or tens of thousands of trees. This winter many sugarbushes were hit with high winter winds with subsequent damage to tubing by falling limbs; additionally, very deep snow made woods travel slow. Despite the early start, cool weather kept the sap flowing in some Vermont sugarbushes until the last week of April—at least a third of all producers finished boiling 2 months after they started tapping, which is indeed a long season

The long sap season, and the high yields seen by many producers were the result not only of favorable weather, but the frequent replacement of parts of the sap collecting system that have become common practice in modern operations. A striking trend in recent years is the relationship between the age of spouts used and the subsequent sap yield. Research continues to show that older tubing systems, especially older plastic spouts, even when cleaned vigorously in the field or at home, decline in effectiveness as micro-organisms become lodged in the plastic. This decline usually shows up several weeks into the season, or when the days are warmer. This year, of the 23 producers on vacuum who made less than a quart of syrup per tap, only 12 had new spouts in 50% or more of their tapholes. Compare that

to 22 producers who made at least a half gallon of syrup per tap—20 had new spouts in at least 90% of their tapholes. Maple manufacturers now offer a wide variety of spout designs and materials, including many two piece spouts where the tip is designed to be replaced annually. Other factors of course are important in determining sap yield, such the type of pump and amount of vacuum applied to the taphole, the efficiency of tubing system layout, and the amount of time spent in the woods during the sugaring season repairing leaks. While replacement of the spout or spout tip has become common practice, many producers no longer wash their tubing. All modern tubing systems use polyethylene tubing, which tends to stay clean in the off-season unless water or sap sits in it, a majority of producers, including many with very high sap yields simply drain the last sap by pulling spouts with the vacuum pump running.

Much data from the survey followed trends seen in previous years; for example, producers continue to seek ways to reduce high energy costs. Almost 20% of vacuum systems in this sample included pumps with a variable speed drive, which reduces electricity use when sap flow is minimal. Reverse osmosis (RO), which removes some of the water from sap before it enters the evaporator, is used by most producers with 1000 taps or more. Without this time and energy saver, syrup would be vastly more expensive, as it takes approximately 4 gallons of oil or 1/20 cord of wood to make a gallon of syrup from raw sap, while the use of RO (as well as modern steam-recovery devices) can reduce these amounts by as much as 90%, using relatively little electricity. In this survey, of over 350 thousand gallons of syrup made by respondents, 85% was made with the help of RO. Despite the considerable energy and labor savings achieved, some producers don't use RO (or vacuum) out of the belief that these technologies change the flavor of syrup. A counter to this is the result of many syrup contests held in recent years at fairs and field days, where the winner (the best flavored syrup) of a blind taste test has as often been a producer who uses all modern technology, including RO, as a producer using only traditional methods. Another concern that some producers have about modern systems is the effect of vacuum on trees. Research has shown no evidence of increased damage, or chemical changes to the sap, by the use of even very high vacuum. At the UVM Proctor Maple Research Center, a study is underway to determine whether high vacuum and the removal of more sap than was common decades ago might slow the growth of tapped trees, but no reports of trees tapped with vacuum for many years have shown that they are less healthy than untapped trees. Another good sign comes this year as producers reported the depth to which they drill their tapholes; it is much shallower than the traditional 3" hole described in the literature a few decades ago. Few producers now tap deeper than 2"; many on vacuum tap 1 1/2" or less.

In addition to favorable weather, expansion of many operations played a role in what will undoubtedly be recorded as surging US syrup production. Of the almost 900,000 taps utilized by the respondents in the survey I conducted, over 100,000 were added to these operations this year. Maple dealers have reported increases in equipment sales across the maple region. Bulk prices for syrup are relatively stable, which has encouraged more business people to start or expand large operations. The end result will probably be a shift in the proportion of syrup made in the US compared to the big player, Quebec. Expansion in that province, which still dominates world production, is currently held back by a quota system imposed by the Federation of Quebec Maple Syrup Producers. Many factors, such as future Federation policies, and the relative values of the Canadian and US dollars, will be in play when it comes to predicting the long term size of the industry and the prices of syrup. One thing is certain: sugarmakers must always look to expanded marketing of their products if they hope to continue a profitable business making this great food.