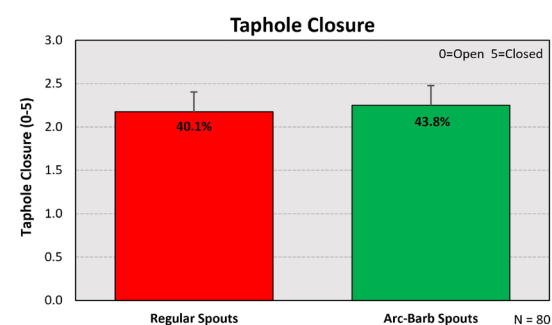




PROCTOR PAGE

News from the University of Vermont Proctor Maple Research Center

Bark removal and taphole closure with arc-barb spouts



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UNDERHILL CTR., Vt. — The Arc-Barb Spout (UVM Patent Pending) is designed with a shortened barrel to allow improved sap flow from the shallower, more productive sapwood zones in maple stems.

One of the design features of this spout is its strong gripping ability in the tree.

This attribute helps to anchor the spout barrel in place to hold it securely and to be less prone to movement and heaving.

The smallest and innermost (closest to the spout tip) barbs typically engage in the sapwood of the tree. The next 2-3 barbs are somewhat larger and generally engage in the bark.

The large outermost barb is a stop, intended to prevent overdriving.

We observed during the development process that occasionally when the prototype spouts were removed at the end of the season a small portion of the bark was dislodged from the tree along with the spout.

This tended to occur more frequently from trees with mature, scaly bark. This can be worrisome to maple producers as it can appear that the spout has damaged the tree.

However, it should be remembered that the outer tree bark is dead, therefore its removal should not be expected to cause any problems.

Moreover, it is not uncommon for maple producers to scrape bark off of thick-barked maple trees during tapping to ensure spouts are placed primarily into wood (xylem) tissue.

This practice has not been known to cause problems as long as scraping does not penetrate so deeply that it reaches the cambium (the living radial growth tissue).

During development of the Arc-Barb Spout, we monitored taphole closure in trees where this spout was used and did not observe any differences from trees tapped with normal spouts.

However, to allay possible concerns from maple producers, we quantified taphole closure in trees tapped with Arc-Barb Spouts (the molded production model) and compared it to regular spouts.

Estimates of taphole closure were made on a total of 80 trees, half tapped with Arc-Barb Spouts and half tapped with regular spouts.

Trees were tapped in February 2023 and sap collected throughout the season. Sap yield results from this study were reported previously (*The Maple News*, May 2023), with Arc-Barb Spouts producing 4.5 gal (12.2%) more sap than regular spouts.

Following the 2023 growing season, taphole closure was visually estimated in December 2023 using a scale from 0-5, with 0 being completely open and 5 being completely closed.

Taphole closure results are shown in the chart.

Tapholes in both regular and Arc-Barb Spouts were somewhat under half-way closed (40.1% and 43.8%, respectively), which is within the typical range for trees with 5/16" tapholes at our location.

Full taphole closure is typically achieved in two growing seasons. Differences in taphole closure in regular and Arc-Barb Spouts were not statistically significant.

These results indicate that the removal of and visual damage to the bark caused by the Arc-Barb Spout does not affect the cambial tissue does not impeding growth in the vicinity of the taphole.