

MAPLE TAPPING: WASTE SOLUTIONS

DEVELOPMENT

- Initially, the team's project scope was limited to finding a waste management service to accept the used HDPE tubing or an alternate use.
- However, the team discovered opportunities for project growth and a long-term solution.
- All waste management service providers and alternate users required information about the quantity, regularity and quality of the tubing – unavailable information.
- The team developed a database to collect data concerning quantity, regularity and quality of waste.
- The team developed and optimized a tubing preparation process that can adapt to the services' requirements.
- The team compiled a list of waste management service providers that may be available to recycle tubing.



Finding recycling options and designing alternative uses for the HDPE Vacuum Tubing Waste from Bigleaf Maple Tree tapping.



FUTURE OPPORTUNITIES

- Creation of a network between local farmers and agricultural industries to reuse tubing in other suitable areas, such as drip irrigation or cable protection. A website, forum, or group could facilitate networking.
- Using the tubing to create mats or other plastic goods. The tubes could be weaved into goods or melted down.
- Database sophistication. The database is a solid, quality tool, however there is always room for improvement and added features.
- Customization and further optimization of preparation process. Current preparation process is purposefully adaptable, sugarmakers may be interested in having a custom preparation process.

FINAL SOLUTION

- The database was created through a series of steps. First the team created an ER Schema, translated it to a EER Schema and used that schema to build the database.
- The database collects information concerning quantity, regularity, and quality of tubing waste. It then provides a waste management service provider's contact to the user.
- The tube preparation process was developed and optimized through research and experimentation. The critical details are tube length and cleaning solution. Through experimentation, the team concluded that a water & hydrogen peroxide mixture effectively removes debris from tubes.
- The team gathered a list of waste service provider's who would be able to recycling the tubing in the future.

