## SAP YIELDS AND TAPPING STAINED WOOD SEPTEMBER 16, 2020

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<sup>\*</sup><u>1.0 Category 1 Continuing Forestry Education</u> <u>Credit (CFE) available</u>



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#### Visit the <u>Upcoming Events</u> page at <u>Maplemanager.org</u> to complete your registration.

Date	Time	Session Topic
Wed. September 30th	7 pm EST	Fall Tapping and Tap hole Longevity
Wed. October 14th	7 pm EST	Forestry and Maple Panel Discussion
Wed. October 28th	7 pm EST	Tubing Systems and Forest Management
Wed. November 4th	7 pm EST	Digital Entrepreneurship and Online Sales
Wed. November 11th	7 pm EST	Sap-Only Enterprises
Wed. December 9th	7 pm EST	Appraisal and Valuation of a Sugarbush



# MAPLE EDUCATION RESOURCES



**Business Plan** 



Ask the Team



Legal Resources and Templates



Forestry





#### White (Functional) Wood



#### **Brown (Non-functional) Wood**





## **Tapping Guidelines**

(based upon wounding and growth rates)

### **IMPORTANT FACTORS**

- Tree growth (often unknown)
- Tree size
- Drop line length
- Bit/spout size
- Tapping depth
- Number of taps
- Ability to move lateral line up/down
- Status of tree compartmentalization (tapping history)



### Compartmentalization is the trees natural defense against decay



Shigo & Marx 1977

## What does tapping do?

- Generates permanently nonconductive wood
- Number of compartmentalized areas determined by the tapping intensity
- Diameter growth *adds* conductive wood



Shigo & Marx 1977

#### Wall 1 Forms Here

Wall 2 Forms Here





### Wall 3 Forms Here





### How much sap do you collect when tapping into stained wood?



- 20 Trees with history of tapping
- 3/16" gravity lines, 1 tree/line, 1 tap/tree
- 10 trees tapped directly above previous years taphole
- 10 trees tapping into clean wood
- Season total sap production and average sap sweetness for 2018 and 2019
- Wood chip mass



#### 5/16" holes, 1.5" deep directed above previous years hole

### Three of ten tap holes 2018 appeared to miss stained wood





#### Wood chips from all trees were collected

### Wood chips from all tapholes were collected



#### Conductive wood

#### Nonconductive wood

#### Nonconductive wood

Conductive wood





# Results







## Sap Production from taps placed in non-conductive wood (NCW) and conductive wood (CW)







#### What is the relationship between amount of nonconductive wood and yield?



#### Maple syrup production from tapholes drilled into stained wood



# Taphole closure





#### Closure of conductive wood (CW) vs. nonconductive wood (NCW) tap holes



Percent Tap Hole Closure

#### How often do sugar makers hit brown wood?

- Survey of 312 sugar makers from VT, NY, ME, MA, CT, PA, NH, OH and NJ
- Operations ranged from 1 to 100k taps
- Average rate of hitting brown wood >4.5% (±5.5%)
- Range from 0 to 41%





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How often are tap holes drilled into "brown or stained wood?"





# Conclusions



### THE UNIVERSITY OF VERMONT EXTENSION

 Hitting nonconductive wood while tapping can significantly impact sap yields

 The impact on sap yield is roughly proportional to the amount of nonconductive wood exposed

Sap sweetness is not impacted

 Taphole closure after 1 year not impacted

# Recommendations



### THE UNIVERSITY OF VERMONT EXTENSION

- Careful management to help crop trees grow will add more conductive wood
- Take extra time while tapping to avoid obvious mistakes
- Record how often tapholes hit stained wood
- Expand the tapping zone

# Recommendations



- Tapping below the lateral or moving bucket location
- Shallower tapholes
- Smaller diameter spouts
- Fewer taps per tree
- Longer drops



# Questions?



