

American Sycamore Sap & Syrup: What We Know and What We Don't



Future
Generations
University

LUKE TAYLOR-IDE & SARAH COLLINS-SIMMONS

LUKE@FUTURE.EDU &
SARAH.COLLINS-SIMMONS@FUTURE.EDU

About Future Generations University

- ▶ Founded in 1992 as the result of a UN Taskforce investigation of “What are the conditions for sustainable community impact.”
- ▶ Started as an international NGO with pioneering efforts in Community Conservation efforts across the Himalaya
- ▶ University dedicated to the field sustainable Community Development
- ▶ Today, two Divisions: Academics & Community Engagement
 - ▶ Academics focuses on a Masters in Applied Community Development, Professional Certifications, and Residential Learning
 - ▶ Community Engagement Division advances Participatory Actions Research in Appalachia, Himalaya, and across Global Network of partners
- ▶ Appalachia Research areas:
 - ▶ Agroforestry across West Virginia
 - ▶ Youth Education Farm to School
 - ▶ Appalachian Tree Syrups



Sycamore: Tree Physiology



- ▶ Largest (diameter) North American hardwood
- ▶ Successful primary and intermedia succession tree in moist and well-drained soils, including riparian and alluvial ecosystems
- ▶ Fast growing
- ▶ Readily propagates through seed or transplantation as well as stump regeneration and root sprouting
- ▶ Develops a widespread and relatively deep, strongly-branched root system; creates stability in shifting soils

Ecosystem Value and Services



- ▶ Riparian ecosystem protector, holding rocks and soils in place during seasonal flooding
- ▶ Mature trees can withstand weeks inundated with water during, following flood events
- ▶ Seedlings can survive short periods of complete submersion
- ▶ Important wildlife habitat (dens, nest site, shelter) and food source for certain bird species

Lumber Value

- ▶ Hardwood species
- ▶ Typically monetized as pulpwood
- ▶ Dense interlocked grain can cause warping when plainsawn/flat sawn
- ▶ Difficult to split
- ▶ Prized by cabinet and furniture makers
 - ▶ Must be milled as quartersawn lumber
 - ▶ Interesting pattering from grain and sapwood/heartwood coloration
 - ▶ Good for butcher blocks and woodturning
- ▶ Unmet demand in woodworking community



Traditional Medicine/Ethnobotanical Value

- ▶ Various parts used as traditional medicine by Native peoples of the eastern and midwestern US including Cherokee, Creek, Delaware, Iroquois, and Meskwaki
- ▶ Infusions or decoctions made from inner bark and occasionally from roots
- ▶ Traditionally use for treatment of respiratory illnesses including coughs/colds/tuberculosis, urinary tract infection, dermatological rashes, and infections, and as gastrointestinal aid
- ▶ While not adequately proven in modern/western medicine, clinical evidence of compounds in sycamore leaves and other tree parts for effective treatment of MRSA

Sycamore Trees in History (useless/trivia-winning facts)



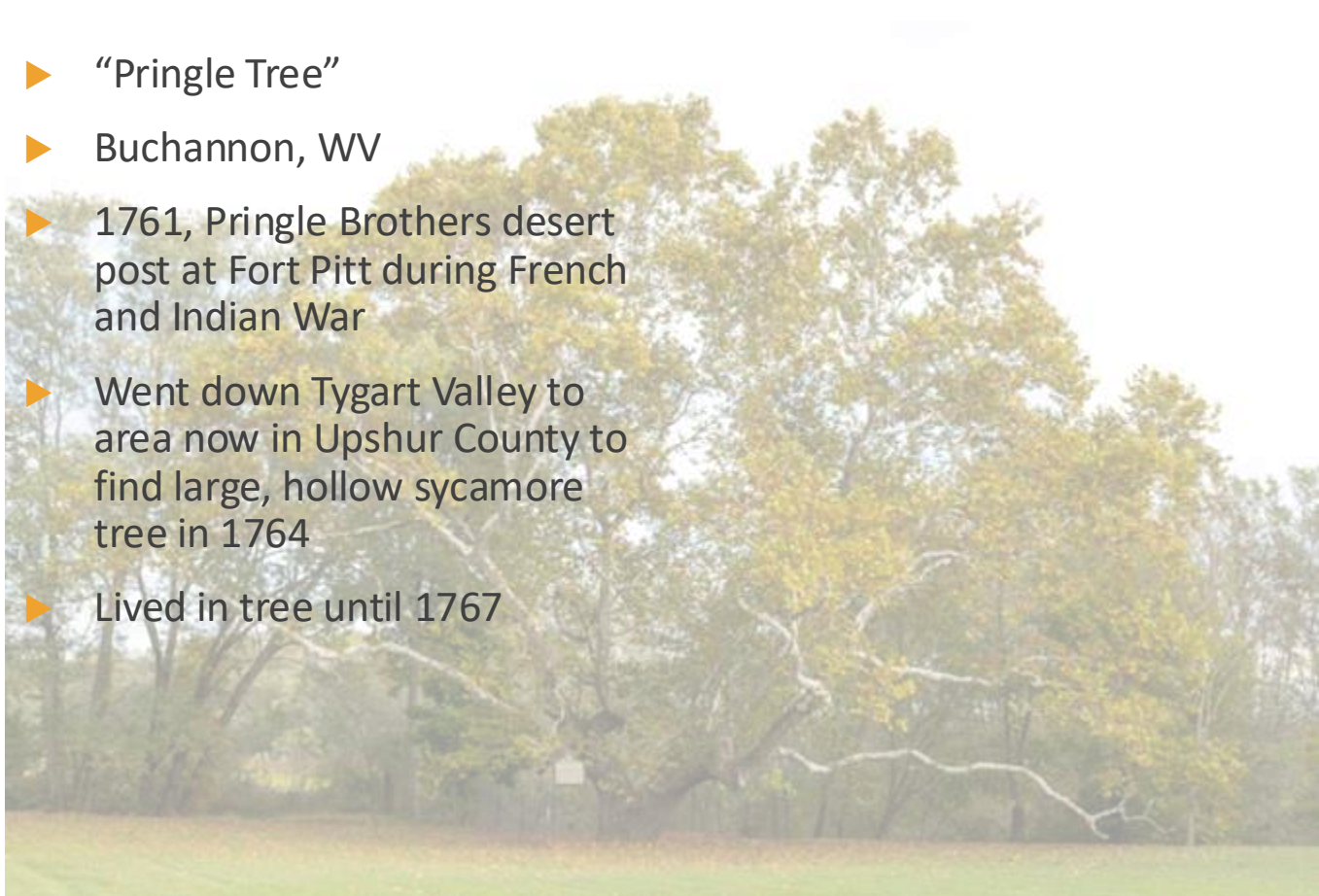
- ▶ “Moon Trees”
- ▶ Apollo 14, 1971
- ▶ Stuart Roosa, astronaut and former USFS smoke jumper, and Ed Cliff, Chief of USFS
- ▶ 5 species, 2000+ seeds
- ▶ Forest Service Station in Gulfport, Mississippi and distributed for 1976 Bicentennial



Sycamore Trees in History (useless/trivia-winning facts)



- ▶ “Pringle Tree”
- ▶ Buchannon, WV
- ▶ 1761, Pringle Brothers desert post at Fort Pitt during French and Indian War
- ▶ Went down Tygart Valley to area now in Upshur County to find large, hollow sycamore tree in 1764
- ▶ Lived in tree until 1767



Sycamore Syrup History



- ▶ First attempt in 2018 to see “is it really possible to make it?”
 - ▶ Need Vacuum
 - ▶ Low Sugar—get an RO
 - ▶ Syrup wasn’t very good
- ▶ Repeated the experiment in 2021
 - ▶ Bag Study
 - ▶ Created Maplemore
- ▶ SARE funding for 2022—2023
 - ▶ New Partner sites—only 1 successful
 - ▶ Standardized Process
- ▶ Continued in 2024 as volunteer effort

Syrup Production Methodology

Season	Tubing	Drop	Spile	Sap/Sugar Readings	Bag Study	Season Notes
2018	5/16 new	5/16	5/16 white maxflow	None	Yes	Need Vacuum
2021	3/16 new	5/16	5/16 CDL signature clear	Yes	Yes	End Pressure gauge added / old stove
2022	3/16 old	5/16	5/16 CDL signature clear	AM & PM	Yes	Major Clogging / bad syrup
2023	3/16 new	5/16	5/16 CDL clear & 5/16 Proctor tap	AM & PM	No	Retapped w/new drops & taps in March
2024	3/16 new	5/16	7/16 CDL black	AM & PM	No	New Pump, same size

Factors Across Years and Equipment

- ▶ 2022 reused lines which was a total failure and created bad syrup and still did not have an endline gauge.
 - ▶ Clogging at top of line early in season.
 - ▶ Not clear if season data reflects total sap count for entire season.
- ▶ 2023 tapped late and experienced pump malfunctions and poor conditions
 - ▶ Attempted to tap low on the tree's, which led to poor drop in lateral line
 - ▶ Significant clogging as a result of slow sap movement in lateral
 - ▶ Retapped and adjusted line in early March to get late season bumper collection
- ▶ 2024 aimed to test 7/16 spile, but we also replaced the pump and had a generally good year of maple production.
 - ▶ Best production year to date and utilized endline gauge.
 - ▶ 7/16 tapered taps slipped and needed to be tightened after warm spells
 - ▶ Replaced top 10 drops and spiles in March due to clogging.



Vacuum Is Essential: 2021 Bag Study Results

Bag #	Feb 24	Feb 28	March 4	March 10	March 12	March 14
1	0	4.5 oz	2 oz	4.5 oz	0	0
2	0	18 oz	48 oz	41.5 oz	0	0
3	0	5 oz	23 oz	16 oz	0	0
4	0	0 oz	14.5 oz	8 oz	0	0
5	0	6 oz	0 oz	48 oz	0	0
6	0	4 oz	11 oz	4 oz	0	0
7	6 oz	21 oz	128 oz	252 oz	8.5 oz	8.5 oz

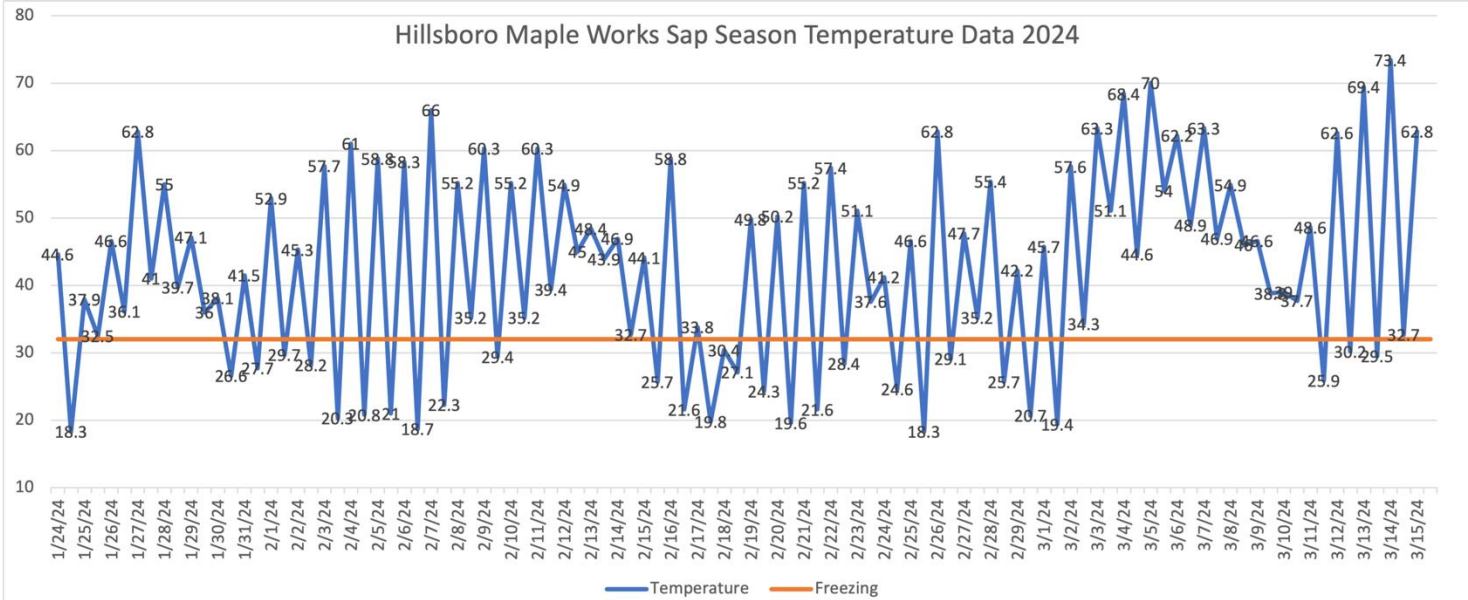
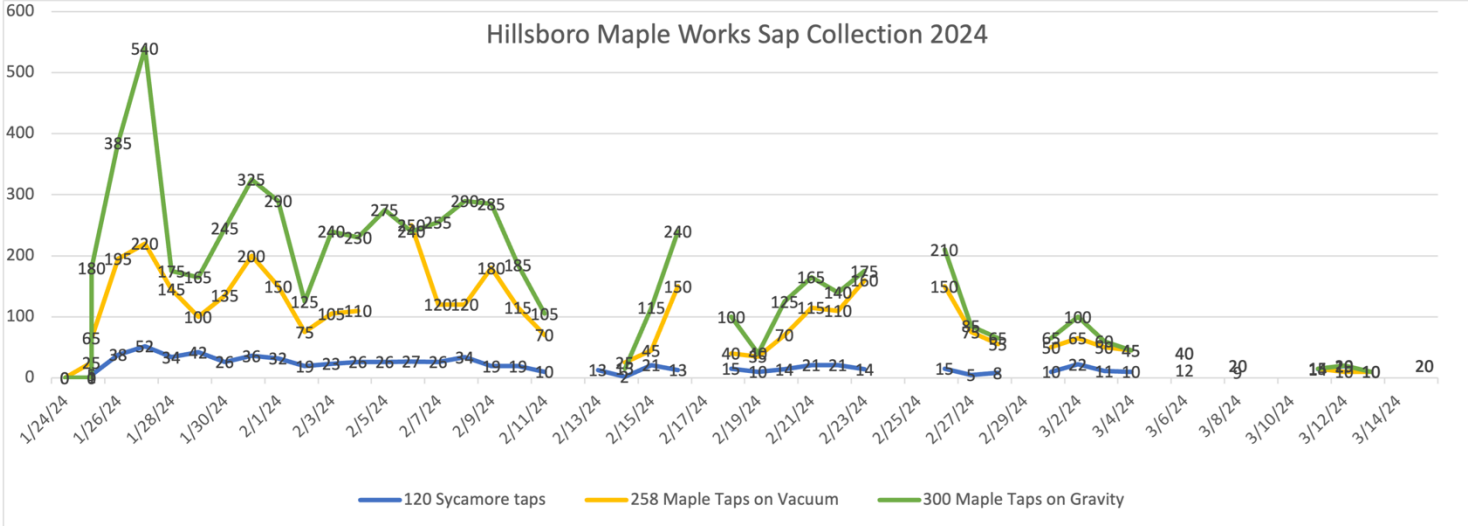
Data Collection and Analysis

Research Partners

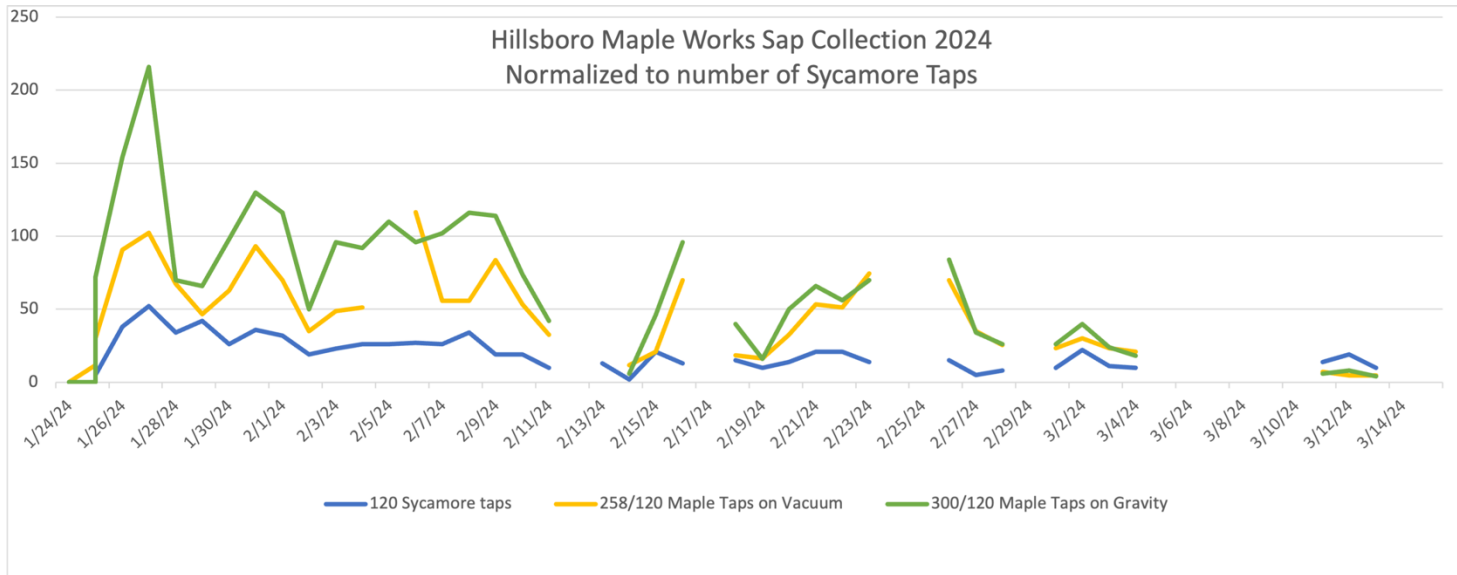
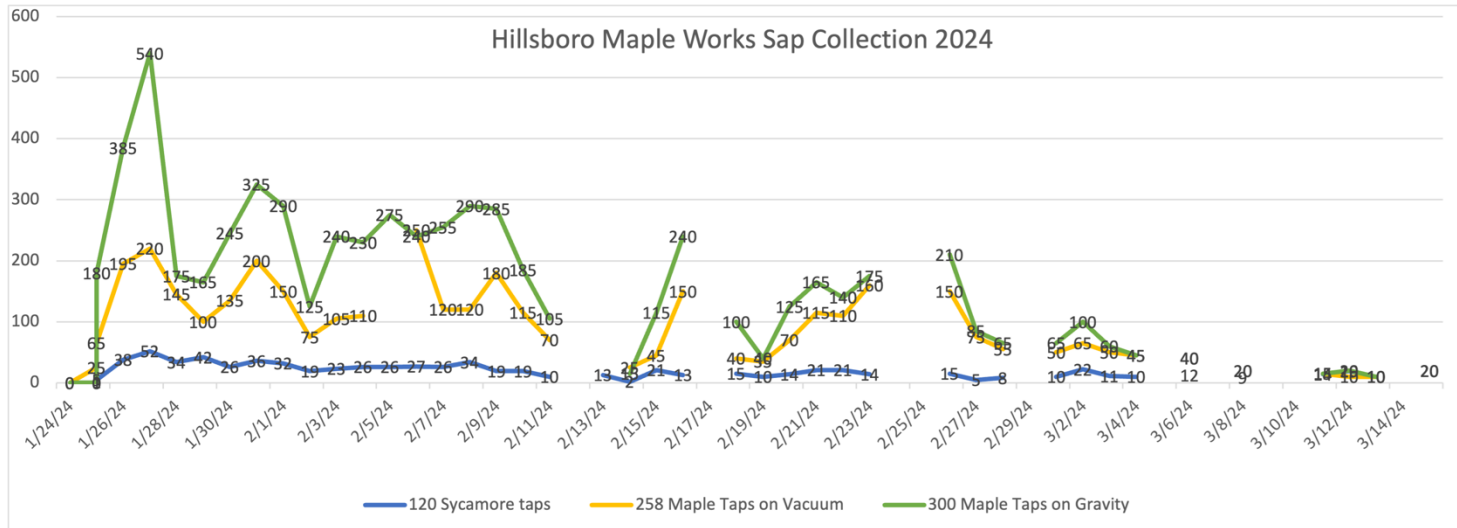
- ▶ Hillsboro Maple Works
 - ▶ Hillsboro, WV
 - ▶ Maple and Sycamore
- ▶ McCoy's Mill
 - ▶ Franklin, WV
 - ▶ Small-scale Sycamore



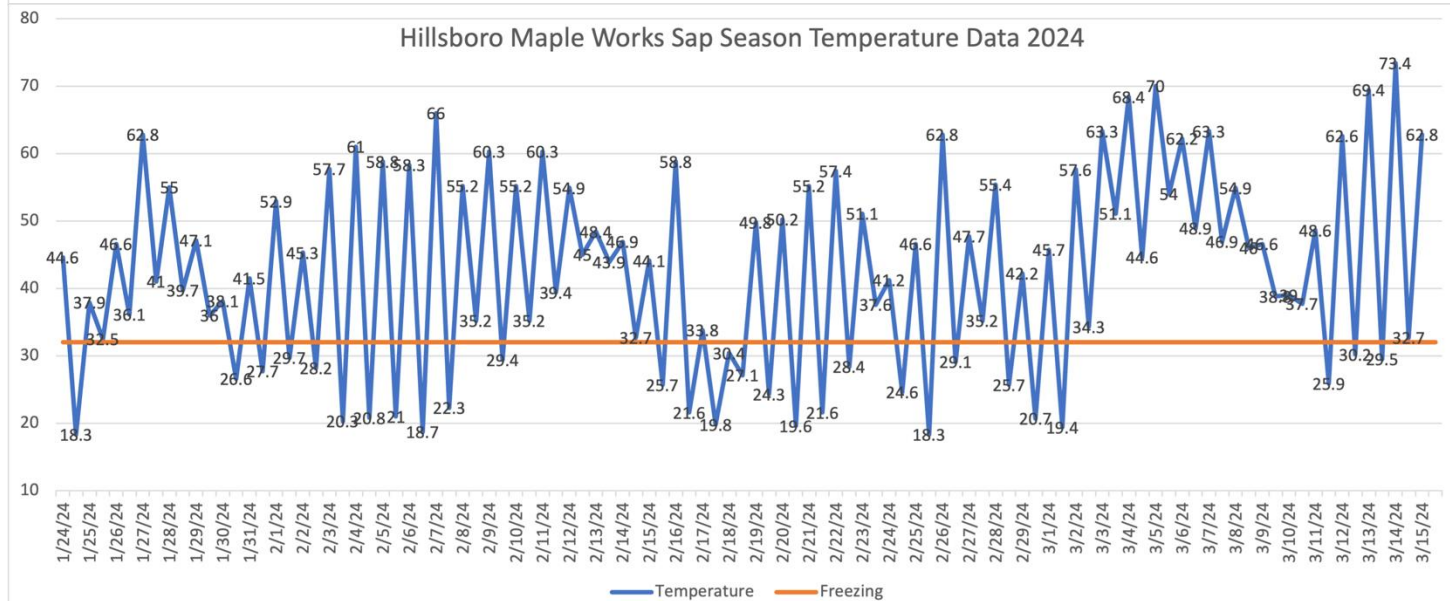
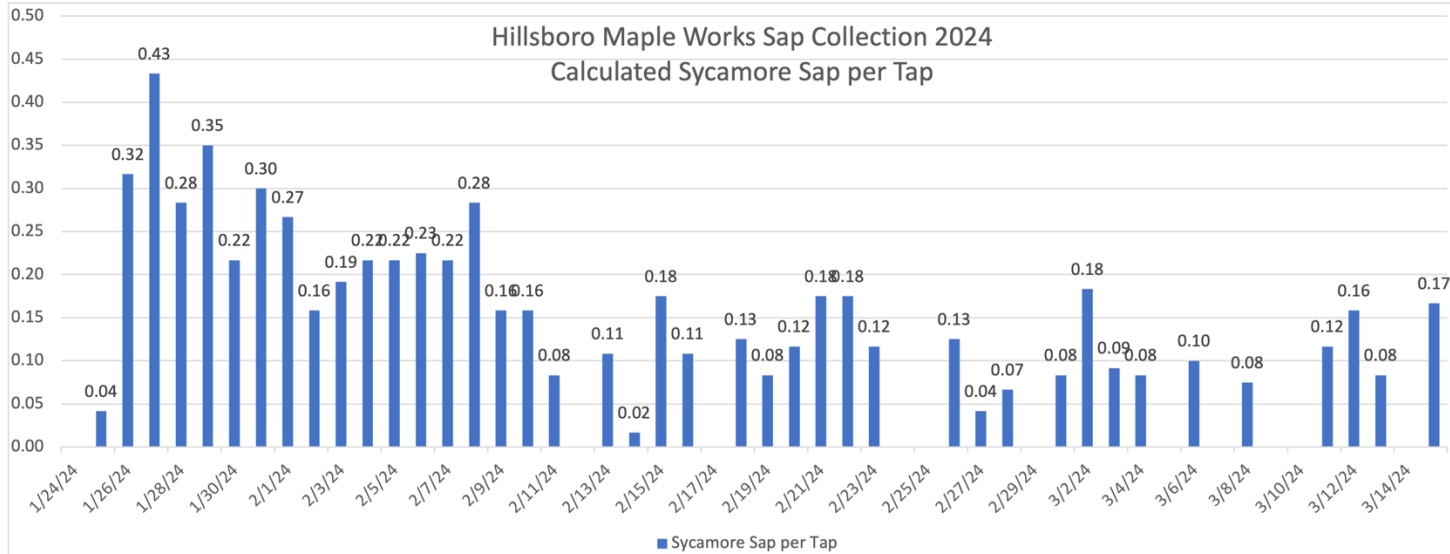
Hillsboro Maple Works 2024 Season



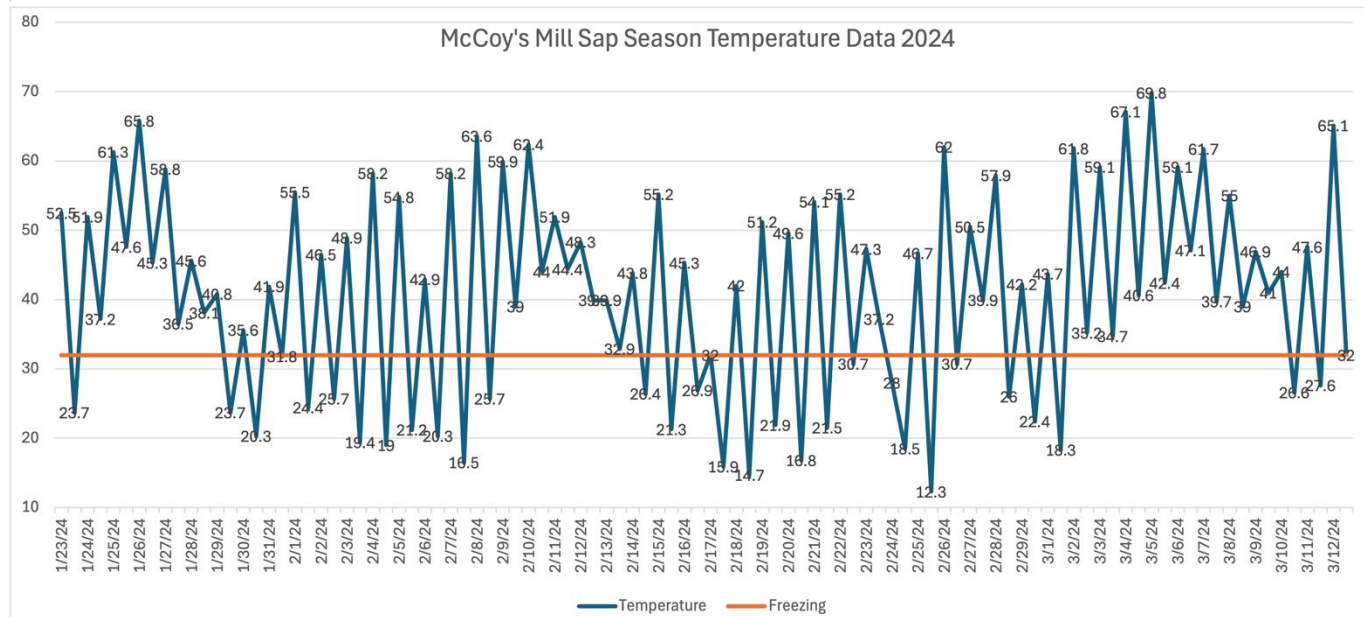
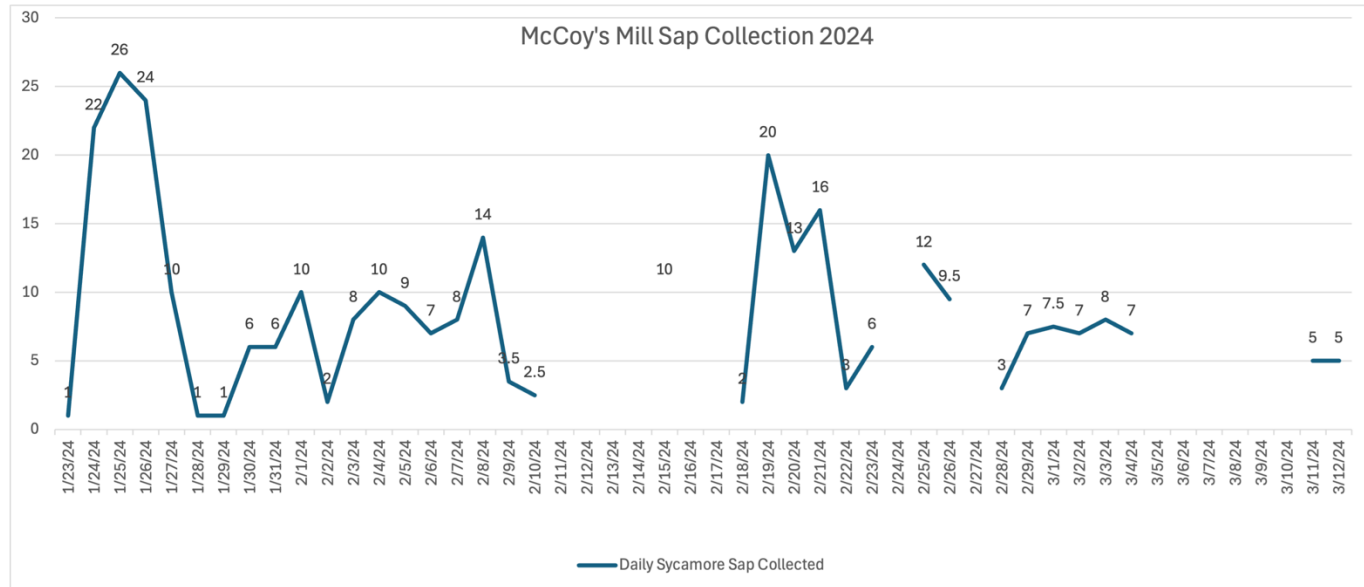
Hillsboro Maple Works 2024 Season



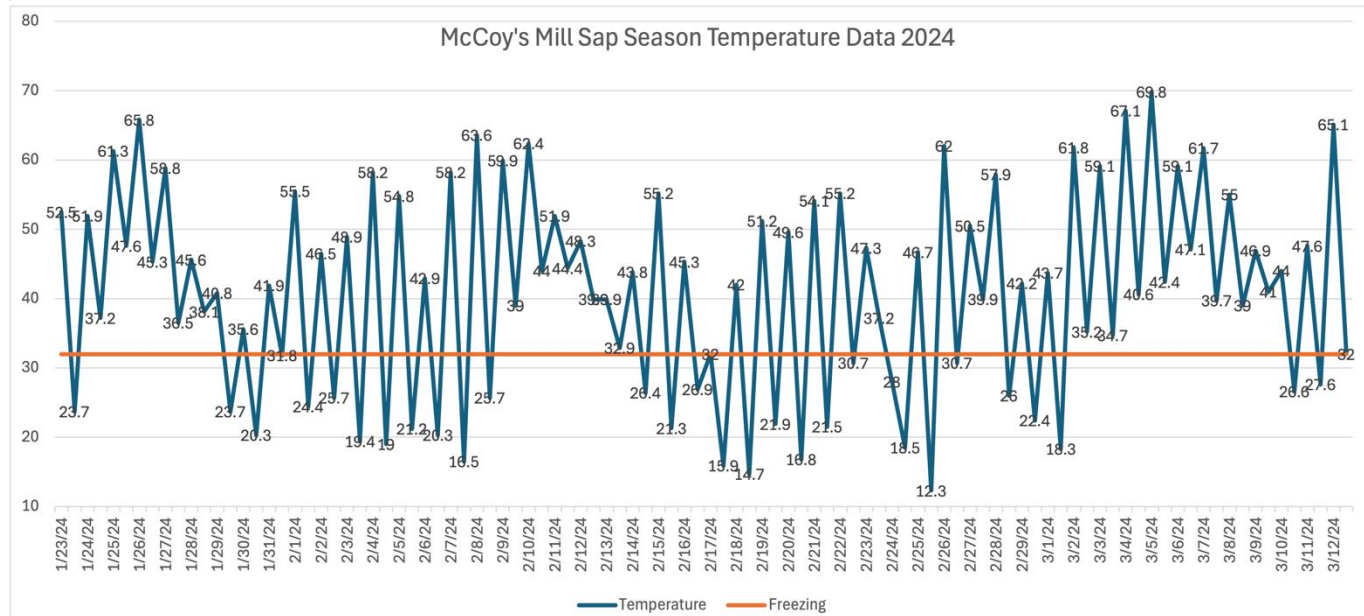
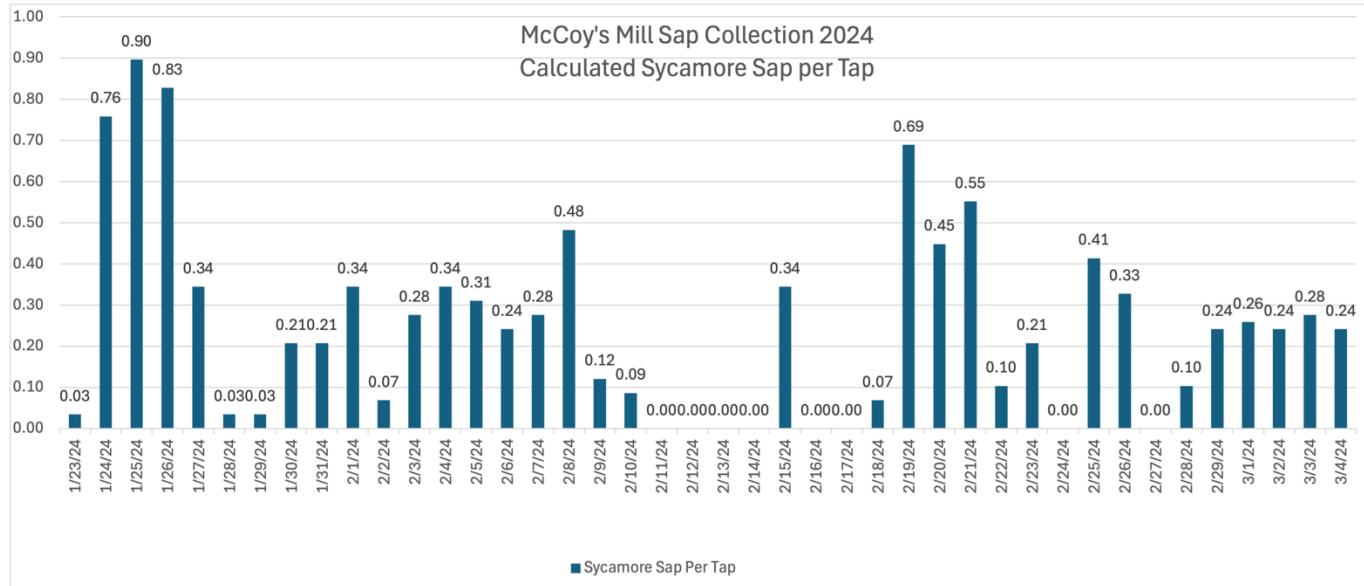
Hillsboro Maple Works 2024 Season



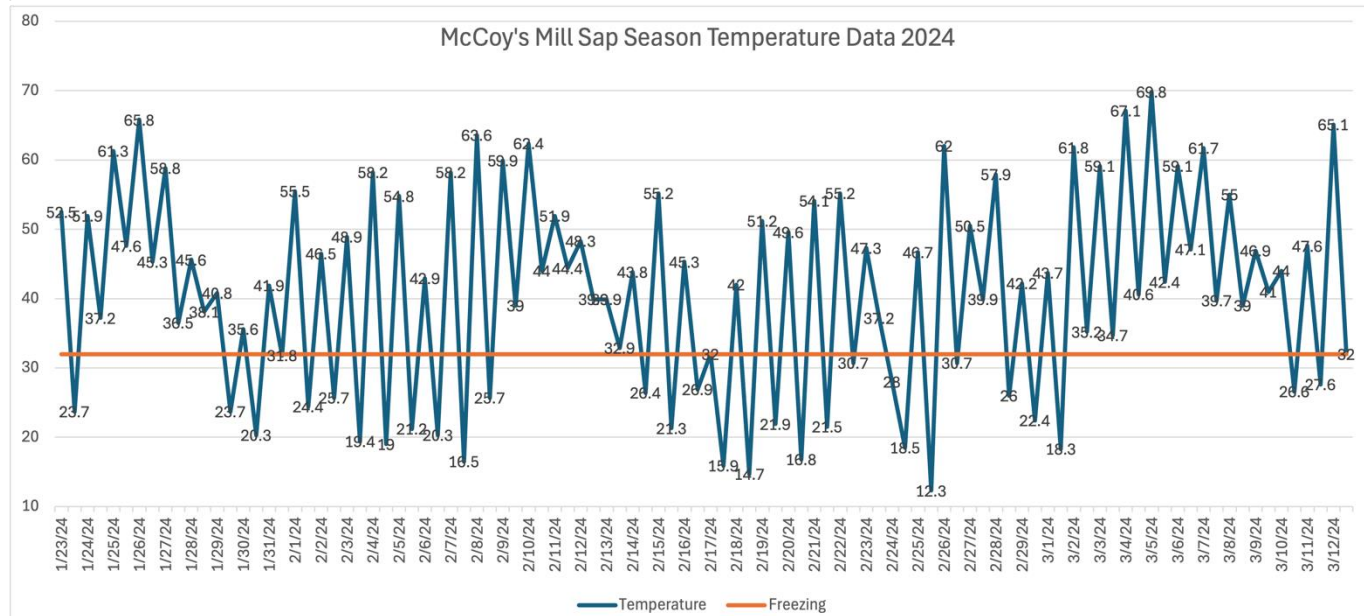
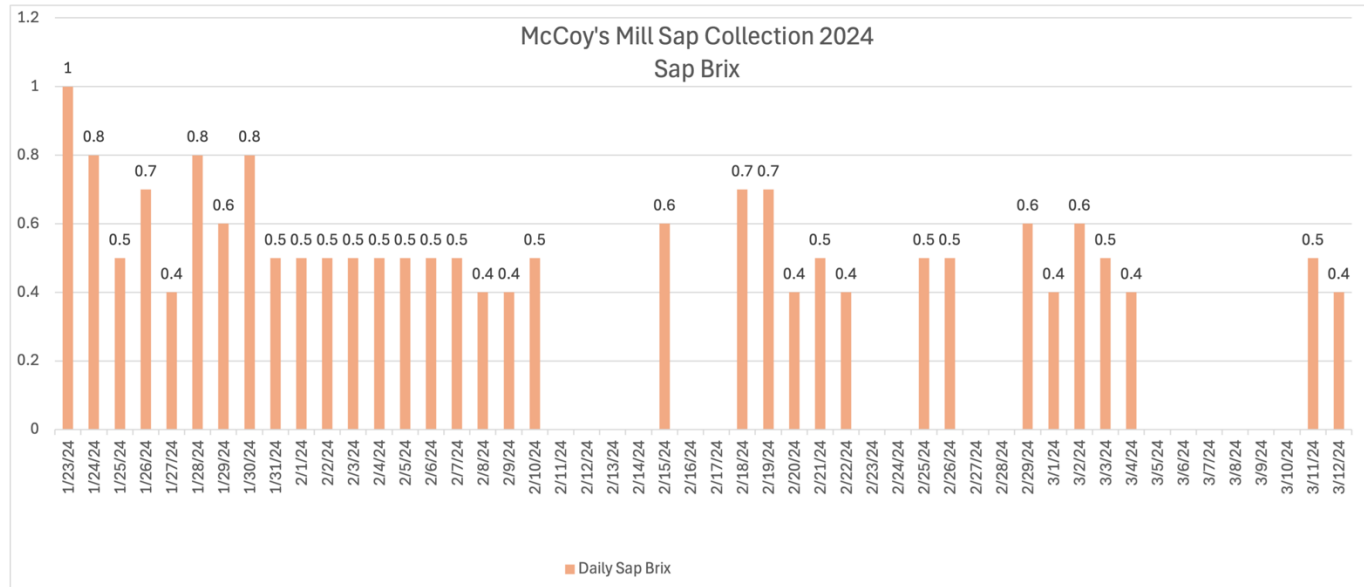
McCoy's Mill 2024 Season



McCoy's Mill 2024 Season



McCoy's Mill 2024 Season



Sycamore Syrup Taste and Blends

1. Production:
 - i. Starting brix around 0.4-0.7—RO is essential.
 - ii. 55 gallons of sap reduces to less than 5 gal. at 7.5 brix
 - iii. Cold storage of sap—full boils twice per season
 - iv. 2024 collected 292 gal. sap resulting in 1.5 gal. finished syrup
2. Color/Flavor
 - i. Dark amber to very dark/black.
 - ii. Sorghum is the notable flavor profile
 - iii. Notes of butterscotch on lighter syrup.
 - iv. Taste profile sours/bitters around 66 brix.
3. Filtration
 - i. Cone filter with two pre-filters
 - ii. Lots of niter and mineral content
 - iii. Not large enough batches for filter press
 - iv. Residual “sludge” build up post filtration
 - v. Crystallization effect occurs with certain batches
4. Uses
 - i. Not pancakes—produced at fluid ounce and not as sweet
 - ii. Culinary & cocktails—soups, glazes, and mixer
 - iii. Maplemore—70% maple & 30% sycamore
 - a. Originally used off flavor maple syrup
 - b. Pints for \$26 compared to \$8



Flavor Preferences Across WV

Syrup Type	Charleston	Rock Branch	Snowshoe (kids only)	WV Small Farms	Franklin	Upper Tract	Totals
Walnut	16	15	10	13	18	23	95
Maplenut	11	64	9	6	33	33	156
Maple	2	60	16	3	5	51	137
Maplemore	12	30	17	13	13	45	130
Sycamore	9	5	2	7	7	11	41

Thank You!!!

Please reach out: syrup@future.edu

Luke@future.edu &

sarah.collins-simmons@future.edu

