

Ric Cengari: We're back with Vermont Viewpoint, I'm Ric Cengari. I didn't quite get it when I first moved to Vermont. Yes, I heard the words "pure maple syrup," but the penny didn't job until I was at the Morse Farm Store in Montpelier. I knew they sold their own maple syrup, so I just couldn't figure out why they had containers of competing national brands in the store up on a cross beam. Then I noticed index cards below each of them, [00:00:30] 10%, 8%, 5%, 3%, 1%, and 0%. What? Oh, don't. Pure maple syrup, 100%, pure. And those others, well ... I believe I've learned a lot more about Vermont maple syrup and sugaring since then. But, I can always learn more when I'm in the presence of experts. And we've got one with us this hour, UVM Extension Maple Specialist and host of the Vermont Maple Minute, is Mark Isselhardt, [00:01:00] with us to educate us on this sweet science. Mark, thanks so much for being here on Vermont Viewpoint.

Mark Isselhardt: Thanks, Ric. Thanks for having me.

Ric Cengari: Now, listeners, if you've got a questions about sugaring, if you want to tell us about why you love spending hours our in that sugar house boiling that sap, you can give us a call, 244-1777, 877-291-8255. And Mark, I hope you don't mind, but I want to start with some basics for those who aren't familiar with sugaring, [00:01:30] kind of like I was when I first got here. We'll start with a primer and then we'll build up. First of all, when is it best to tap trees?

Mark Isselhardt: Well, that's a good question. Even that most basic question has evolved a little bit. There's a strong tradition, a very proud tradition of sugar making. Sugar makers continue to evolve and innovate. [00:02:00] Even though the image of maple tends to be fairly narrow for a lot of folks, thinking galvanized buckets on a country road, sugar makers are very innovative. Even the practice of when to tap has changed quite a bit. We can talk a little bit later about why that is. In general, you want to have a tree that is not rock-solid frozen. In other words, a day like we're going to have this weekend would not be good for tapping because the [00:02:30] outer xylem, or sap wood in the tree that's underneath the bark, will be so frozen solid that even with a gentle tapping you have potential for doing damage to the tree. Historically, right around early March was seen as ideal time when you had good weather for tapping. But we've seen, for various reasons, tapping has started earlier and earlier. In fact, sugar makers are already out there tapping. Some, believe it or not, have already made some syrup this season.

Ric Cengari: [00:03:00] Oh, my.

Mark Isselhardt: Not to make your simple question complex, but it really matters on how large your operation, to make sure you have them in when the real sugaring weather comes, and how you approach it.

Ric Cengari: I think we're going to find, and as I have found in this subject, even the simplest questions can get quite complex. Is there a better side, north, south, east or west of a maple tree to tap?

Mark Isselhardt: That one I can [00:03:30] answer very easily. No. The easy answer is no. There is a lot of folk wisdom around tapping and sugaring, among other things, and farming. When we start talking about something very prescriptive like, "Always tap on the south side," or, "Always tap over a large root or under a big branch," in any given year that might produce incrementally more sap. But it has to do with how the weather is going to be in the next few months. You can't predict that. [00:04:00] If people always follow that pattern you end up doing more damage to the tree because all your tap holes are clustered in one area. The overall damage to the tree is greater. No. We recommend always spacing out your tap holes as best possible and utilizing as much of the tappable space as you can.

Ric Cengari: You mentioned collecting sap in the metal buckets. That is just one way. Explain the collection of the sap.

Mark Isselhardt: [00:04:30] Sure. Yeah. The process of sap flowing out of a tree, it's not something that trees do for a sugar maker's benefit. It's a natural process of the tree's anatomy responding to fluctuations in temperature. And maple, not just sugar maple, but red maple and any of the [inaudible 00:04:47] species have this positive pressure development when the conditions are right. Buckets still work. They work the same this [00:05:00] year as they did 100 years ago. It's relying on that ideal weather of freezing at night, which develops a negative pressure in the tree. And the tree actually draws moisture up into the above ground parts. Then whenever it thaws out again, in the meat of the sugaring season it's the next day but it could be longer if there's a freeze up. Next time the tree thaws out you get this positive pressure. It's a combination of that liquid that's been drawn up from the ground, [00:05:30] plus the expansion of gases in the tree as a result of that warming.

The lore of how humans began tapping trees and collecting sap, there's a lot of mythology in the Native American past about that. There's also some interesting observations of nature, of squirrels, red squirrels specifically, and birds [00:06:00] collecting the sap. We think there's probably some good observation that happened there. People still tap with buckets, and like I said, it still is as good of technology as it was 100 years ago. Many producers have moved to plastic tubing and plastic tubing with vacuum pumps to collect it. The big different there is the vacuum pump produces an artificially larger difference in pressure. If you have buckets you have to have [00:06:30] that freeze-thaw vent or after a day or a little more you'll just get no sap out of the tap hole. With the vacuum pump that differential and pressure remains even if it hasn't frozen up. It's not as great as a big freeze-thaw event, but you still collect sap.

Ric Cengari: All right. Let's get to a couple of numbers because, again, if you're going to be a Vermonter it's important to know these things to hold this conversation with anyone. First of all, how much sap do you need to [00:07:00] collect to create one gallon of syrup and what's the ideal sugar content for syrup?

Mark Isselhardt: Right. The ration of gallons of sap to syrup depends on what the concentration of the sap is, and that's not a static number. Early in the season, the first few runs of sap tend to be a little lower in sugar content. They might be somewhere between 1.5% sugar, possibly up to 2%. But then as the season progresses, the middle of the season tends to be the highpoint. [00:07:30] Sap might be 2%, 2.5%. It really depends on a lot of factors including the sugar bush, and the trees in the woods, as well. At the end of the season the sap sweetness drops off. Sugar makers anticipate that and they know it's not always going to be 40 to one. It might be 60 to one ratio of sap to syrup. It might even be less than that near the end.

The sugar [00:08:00] concentration of syrup is very prescribed by Vermont law. It has to be 66.9% sugar to 68.9% sugar. Once we get into talking about grading and stuff we can talk about that. If it's under that you risk mold or fermentation of the syrup. If it's above that you'll get sugar crystals, which are difficult for people to consume and enjoy.

Ric Cengari: Yep. You got to hit that sweet spot. What equipment is [00:08:30] needed to convert that sap into syrup?

Mark Isselhardt: Yeah. If you go way back, just a single pot and a heat source would do it. It's inefficient, but the technology still works. One of the big innovations came in the late 1800s when metal and fabric technology allowed for the making of what we call continuous flow evaporators, the ones [00:09:00] that most people would look at now and recognize as having deep flews, bent metal flews sitting down in the firebox. That's really just to increase the surface area. Most of your evaporation happens in the back pan of an evaporator. Then there's a front pan. They're divided up by partitions, little walls that have, essentially, one way for the syrup to get through. You can make it as high tech and complex as [00:09:30] you want. There's lots of manufacturers of equipment in Vermont and elsewhere. I know we're going to be talking to some people who make some nice hobby sized evaporators later. It all works. It really depends on investment and how many taps you're going to have, and what you're looking to spend. I will say that folks who get bitten by the maple bug tend to stick with it.

Ric Cengari: That's right. And you're boiling off a certain amount of water to get to the syrup. There's something called reverse osmosis that can help that process, so you better explain that as well.

Mark Isselhardt: Sure. This is a great example of what [00:10:00] I said earlier about how sugar makers evolve and innovate. Reverse osmosis technology was not invented for maple. It was actually a technology that was used to produce fresh water or clean drinking water from brackish water [00:10:30] back in the '50s, I believe, was when the membranes were first invented. It really wasn't that long after that, the early '60s, when people started making the connection between, "Hey, we've got this really dilute solution of sugar, which is maple sap, that we need

to concentrate. And everyone's using this really inefficient process of just boiling."

What the membranes are, are a very, very engineered material that have pores that allow [00:11:00] water molecules to fit through, but the sugar molecules are too big. If you think about a roll of paper towel and you're forcing raw sap through, say you force it through the one side. The water will fit through the pores but the sugar molecules will not fit through those pores. You end up with a concentrated sap, and you also end up with a stream of pure water. [00:11:30] It doesn't do it on its own. You have to force it through with a high pressure pump. That does complicate things and it does cost money. The efficiency that you get is huge and it has really made a big difference in not only the efficiency for producers ... If you take half or three-quarters of the water out before you boil, that's half or three-quarters of the fuel, either fire, wood, or, oil, that you have [00:12:00] to burn. There's less emissions. It's a big deal. And the make ROs for very small producers, as well.

Ric Cengari: Mark Isselhardt is here to talk about the joy of sugaring. And we're also joined now, for the next few minutes, by Sarah Ford. She's a consulting forester for Butternut Mountain Farm in Morrisville. Sarah, I want to thank you for joining us.

Sarah Ford: You're welcome. Thanks for having me.

Ric Cengari: Sarah, give us an overview of the operation at Butternut Mountain.

Sarah Ford: [00:12:30] Butternut Mountain Farms, located in Morrisville, is a maple sugaring company. We buy bulk syrup, which is not so much what I'm directly involved with, but we also have a consulting forestry department, which is myself and Fran Sladyk. We work with private landowners who cross the state of Vermont. The current use program, helping them with their management plan, staying in compliance with the program, [00:13:00] some of whom are sugar makers, probably about a third of our clients. We also have our sugar woods in Johnson, which has about 29,000 taps, where we are currently tapping away up there.

Ric Cengari: As a consulting forester, when it comes to sugaring operation, what are the things that you're looking for to maintain that healthy sugar bush?

Sarah Ford: Some of the key things that we are looking at [00:13:30] are forest health. That would be pests, pathogens, insects, and disease, and also invasive species. Regeneration, some of the new young trees that are coming in and what those might be are really important for the longevity of the stand. Species diversity, hoping and trying to manage for not only sugar maple, but other species as well. Which is really important in [inaudible 00:14:00] resilient [00:14:00] to climate change, and also pests and pathogens. Also forest productivity, not only for timber, obviously in this case, for maple.

Ric Cengari: Mark Isselhardt, for smaller operations that don't have their own forester, how can they get the input that they need to make proper forestry decisions?

Mark Isselhardt: Right. There's a lot of information out there. This is probably coming as no surprise to anyone, but not everything you [00:14:30] find on YouTube is really accurate or helpful. I would certainly recommend folks go with trusted sources for information. We have a lot at the UVM Extension Maple Website, the Proctor Maple Research Center, which is part of UVM. Sugaring is a very traditional practice, but it's also modern. The other thing is it's odd in that it's a non timber forest product. We're not harvesting the trees themselves, we're harvesting a product from the trees. All those things [00:15:00] Sarah talked about, good forestry to increase tree health and minimize disease, and those sort of things, those have dividends for sugaring as well. The big difference is we're keeping these trees for a lot longer than we would if we were harvesting them for maybe boards or something else.

Diversity, species diversity and regeneration, the classic image of a sugar bush for a lot of folks is a wide open understory, [00:15:30] easy to walk through. But like Sarah says, regeneration is so important. If you can see across your sugar bush and not see any little saplings or anything, there's not a next generation waiting to exploit the openings in the canopy when some of those older trees have finished their life. Regeneration is really, really important.

There are a lot of presentations on our website that are related to the Maple Conferences. I'd definitely recommend [00:16:00] people do that. Talk to your county forester. Vermont Forest Parks and Recreation have foresters that are there to help landowners. They're not going to write your plan for you, that's what consulting foresters like Sarah are for, but they can really help you take an initial assessment of what you have.

Ric Cengari: Sarah, what is the correlation between sap production and tree health?

Sarah Ford: One of the things that we manage for when [00:16:30] we're working with landowners who are sugar makers is essentially the larger the crown, the more sap production in a tree. A prescription that we're often recommending is a crown release or trying to really promote a big, healthy crown. A crown is the top part of the tree where there's foliage and leaves. This might be a consideration for somebody who's trying to figure out what trees to [00:17:00] be cutting and trees to be keeping in their woods. If they've got some trees that don't really have good healthy crowns or have some dieback, or something, poorly formed crowns, these are things we look at because this can really influence the productivity of your woods.

Ric Cengari: Mark, when do decisions on thinning an area of your sugar bush have to be made and acted upon?

Mark Isselhardt: Well, [00:17:30] a lot of it depends on the mix of species you have. Certainly, when the leaves are on is a good time. Maybe not at the end of the growing season when the green leaves are starting to look a little tired. But certainly after bud break and they've had a good chance to leaf out, that's when you start to see that fine die back and that sort of thing. That's a good idea to maybe put it on your radar as maybe a tree to remove. Sugar Maple is a bit of a Goldilocks tree in that it likes a pretty narrow [00:18:00] range of sites. Generally it does not handle a very aggressive thinning, so you want to do a little bit over time. A little is good, a lot isn't necessarily better.

One thing I want to say, too, is we've been trying to engage the forestry community a little bit more with discussions, too. There has been a lot of expansion with maple in the state. Sugaring has always been this side thing, and it's becoming more and more important. It's been nice to have the [00:18:30] program that our maple conferences approve for professional forester credit. We're getting more foresters involved and hearing the latest research on sugaring and having those discussions. It's been really, really positive, I think.

Ric Cengari: Took me a moment on the Goldilocks reference. Not too hot, not too cold, just right. Yeah, I got it. Slow on the uptake, but Mark, you eventually got me there. Sarah, with the use of tubing and some of that staying up through the year, how [00:19:00] does that impact when you can work on removing trees?

Sarah Ford: Yeah. It has a fairly significant impact now that technology has improved so much. With the tubing and [inaudible 00:19:16] lines, it can certainly hinder some forestry practices within people's woods. What we really try to recommend and urge people to do [00:19:30] is before installing their infrastructure is to do some thinning, some planning for the fact that it might be some time before they get back in there and do any additional work within their area. Usually that happens coinciding with tubing and mainline replacement times in at least larger bushes. Again, in some scenarios it may [00:20:00] be five, 10, 15 plus years before there's much work done, at least on the larger scale. However, we do see that those that are burning with wood in their evaporators tend to be somewhat more proactive. Not only folks who burn with wood, but essentially those that are really out tending to their woods more are still doing some more regular management [00:20:30] of thinning, and the light work that Mark was talking about.

Ric Cengari: Now, left to my own devices, Sarah, I would just want maples in my sugar bush because that's what makes the sap that makes the syrup that I want. But you keep using this word, diversity in my forest. Why do I want trees that aren't maples? Why do I want that diversity in my sugar bush?

Sarah Ford: [00:21:00] Sure. Diversity is really important, especially when there either might be some outbreak of pests or pathogens like forest tent caterpillar, for example. Which, we currently are completed forest tent caterpillar outbreaks in Vermont, for the time being, is what we found. But over the course of the last few years,

there was quite a bit of forest tent outbreak in Vermont. [00:21:30] Maybe sugar bushes that had less diversity were harder hit by forest tent. It essentially provides more options for some pests and greater resilience to these outbreaks. No just pests, or insects, and disease, but also, say, wind, weather events, storms, which we're also seeing increased amounts of across the Northeast, and everywhere, and our changing climate, [00:22:00] too.

Ric Cengari: And Mark, we only have about a minute to the break, but has there been research on these forestry practices and the impact on sap yield?

Mark Isselhardt: The biggest relationship we know, and it's very strong, is the tree size and sap yield. So, the larger the tree the more sap you're going to get. That has some basic physical reasons why. You have a larger, above ground vessel. The long term impacts of modern [00:22:30] sugaring, we are, and in conjunction with the Proctor Maple Research Center in a long term study, looking at that, looking at high vacuum versus just traditional gravity type sap collection, and no tapping, looking at tree growth. Sugar Maples live for a very long time. It's not an easy thing to answer in a few years. So far we are not seeing major impacts on modern sugaring, as a result.

It's a very [00:23:00] complex environment. A forest is a tremendous competition for light, and water, and nutrients, and lots of interaction. It's not a surprise that it's not an easy thing to measure, for sure.

Ric Cengari: Yeah. Sarah, how long can a maple tree produce sap for syrup?

Sarah Ford: Well, that's also potentially a complex answer.

Ric Cengari: Well, we don't have time-

Sarah Ford: It's whole life-

Ric Cengari: I thought we'd just do the easy ones. It's whole life.

Sarah Ford: There's [00:23:30] a minimum size at which we begin tapping trees, a nine inch diameter at breast height and above, is the tappable size of a tree.

Ric Cengari: Wow.

Sarah Ford: And from that point forward, as it's increasing in size, you will see that we sugar makers will tap trees as long as we can.

Ric Cengari: Love it.

Sarah Ford: The entire life.

Ric Cengari: That's Sarah Ford, consulting forester with Butternut Mountain Farm in Morrisville. Thank you so much, Sarah.

Sarah Ford: [00:24:00] You're welcome, thanks for having me.

Ric Cengari: And Mark Isselhardt stays with us for the whole hour. We'll be back after a break for the CBS News Update. Then we'll return to discuss that home sugar operation that you may have. This is Vermont Viewpoint on WDEV.

Recorded Ad Voi...: Here we are into January, still in a pandemic, but there is hope on the horizon. At the Warren Store renovations are wrapping up, the new deli is rocking hard with old favorites and new menu [00:24:30] items like french fries. The grab and go dinners are to die for, delicious, generous, full-course meals. Check out our website warrenstore.com for daily offerings. Upstairs we have a new look in the lady's department and, wait for it, heat and air conditioning. Still fun, friendly, and funky, Main Street, Warren Village. New hours, 7:30 to 5:00 daily.

Ric Cengari: Welcome back to Vermont Viewpoint, I'm Ric Cengari. We're talking about the wonderful world of maple syrup [00:25:00] and for the next few minutes we're going to focus on the backyard sugar operation, the hobby sugaring. There's on Vermont company that has come up with a product that can help you avoid the painful process of boiling sap on your kitchen stove. Joining me now is Kate Whelley McKabe, who owns and operates the Vermont Evaporator Company. Kate, thanks for joining us.

Kate Whelley Mc...: Thanks, Ric, good to be here.

Ric Cengari: Kate, what exactly does your company produce?

Kate Whelley Mc...: [00:25:30] Since 2015 we have been manufacturing and retailing, I think what you're referring to is our flagship product, the Sapling Evaporator. Which is a barrel style evaporator that allows people to make maple syrup outside without having to go to the expense of building a sugar house. It's a portable unit. It also has other functions in the off-season. After you're [00:26:00] finished making your maple syrup in the late winter and early spring, you can pop off the pan and put on grill grates, and use a grill lid and a pizza stone and smoke, grill, and bake food.

Ric Cengari: Got to love that. Who is this designed for? Is it a hobby operation tapping about how many trees?

Kate Whelley Mc...: Yeah. Most of our customers have between, I'd say, 25 and 75 taps. [00:26:30] Some of our more ambitious customers will tap about 100 trees. We like to tell people around 50 if you are going to be like, most of us, hobbyists, and save your sap up to boil on a Saturday, a Sunday, or maybe an odd Wednesday off.

Ric Cengari: How did you come up with this whole idea for the Sapling?

Kate Whelley Mc...: In 2013, I think, my husband and I bought a 10 acre parcel in Montpelier, [00:27:00] which is where we've lived, and where we work, and where our kids go to school. We noticed pretty quickly that we had a really nice sugar stand. And we wanted to try our hands at making maple syrup, but we couldn't afford the time or the expense of making a house or buying professional grade equipment. We knew better than to do it inside. We did try to do it on our grill and it was just really slow and used a lot [00:27:30] of propane. My husband, who's actually an engineer and a patent attorney-

Ric Cengari: What a great combo.

Kate Whelley Mc...: He invented something. Yeah. He invented something called the Sapling Evaporator and then we got patents on it. We found through a pretty organic process of starting super small on Craigslist and local trade fairs that we were really not the only ones in this position. In fact, we've now [00:28:00] sold to thousands of customers as far west as Washington state and as far south as Georgia, and many of the Canadian provinces, and all over what we think of as traditional sugar country here in the Northeast.

Ric Cengari: How has the company grown since you started in 2015?

Kate Whelley Mc...: We have probably doubled in size in terms of our factory, and we've more than doubled in size in terms of our sales. We've also [00:28:30] added ... A lot of product development grows out the questions and the requests that we get from existing customers. We were being asked for many years whether we stocked buckets, and spiles, and drill bits, and things like that. Finally we decided we were going to answer that question, "Yes." We have a whole line of aluminum buckets and spiles, and maple syrup finishing thermometers, [00:29:00] and the hydrometer kit, filters. I also spent some time this fall writing about a 60 page guide to making maple syrup at home. It's based on five or so years of conversations with other hobby sugar makers and some new relationships that I've made with professional sugar makers, and my own research. We have a starter kit that people are buying in droves this year, like they are anticipating being stuck at [00:29:30] home.

Ric Cengari: Yeah, that's outstanding. Vermontevaporator.com is the website that you can find all that at. Kate Whelley McKabe owns and operates the Vermont Evaporator Company. Kate, it was so nice speaking with you, thanks.

Kate Whelley Mc...: Thanks for having me, Ric. I appreciate it.

Ric Cengari: All right take care.

Kate Whelley Mc...: Happy sugaring, everybody.

Ric Cengari: All right. And Mark Isselhardt of UVM Extension is still with us until the end of the hour. Listeners, if you'd like to join the conversation our numbers are 244-

177, 877-291- [00:30:00] 8255. You can also email
vtviewpoint@radiovermont.com.

Mark, what are some important rules that the hobby sugarer should know?

Mark Isselhardt: Yeah, great question. Really, it doesn't really matter what size you are as far as a producer, to make a good, high quality product that fits the standards for Vermont syrup you have to look at color, clarity, density, and flavor. Those are written down in law [00:30:30] and regulation. They're easily accessible. There's reasons why that those laws exist and they have existed for over 100 years. No matter how big you are, it's important to follow those, especially if you're selling it retail. If you're just giving it to friends and family, I would hesitate to even say, "Don't worry about it," because you should be proud of the product you're making regardless of if someone's paying for it or not. But if you are selling it in the marketplace, [00:31:00] even if you're a small producer, you should know that the Agency of Agriculture is the regulator and they have the authority to check retail sales. If it doesn't meet the standard then they can pull it off sale. That's not to intimidate anyone, just to make them aware. There's lots of information available.

I had a great project, and continuing to work with a person at Shelburne Farms. We've developed some curriculum and some information for high school, tech center, forestry, and natural resources [00:31:30] students who have maple programs. We have a mini manual that's free and available on our website that really goes soup to nuts, everything from tree ID all the way to finishing syrups. I would recommend folks check that out if they're looking for new information and how to do it. There's also lots of other websites. If people have questions, they can certainly contact me. I can point them in the right direction, recording of past maple conferences, all those sort of things.

[00:32:00] But, as Kate says, it's tricky. You're dealing with boiling, and precision, you use a hydrometer, a lot of people, to get the density just right. There's lots of ways to do it and as long as folks are checking and making sure they're doing it right, then it'll be a great product.

Ric Cengari: We heard from Kate about the Sapling Evaporator that they make, but why not just boil the sap in your kitchen, on the stove?

Mark Isselhardt: [00:32:30] Yeah, well, the last time I checked, drywall repair was really expensive. You're talking about a tremendous amount of water. You're taking something, like I said before, assuming you're not using an RO, you've got something that's only 2% sugar and you're bringing it all the way to 67% sugar. All that water has to go somewhere. If you have wallpaper or if you have drywall, all that stuff is going to really not tolerate a lot of moisture. Doing it outside's important, [00:33:00] and being safe. You're talking about hot liquids and all that. Anyone can do it, but you definitely have to follow some basic assumptions about how to do it well and safely.

Ric Cengari: Is there a way of testing out whether you're really going to stick with this before you start spending money on a lot of equipment?

Mark Isselhardt: That's a great, great thing. I think that probably [00:33:30] the best way to learn is to talk with other sugar makers and to connect with folks, and maybe even volunteer.

Ric Cengari: Yeah.

Mark Isselhardt: Tapping is a real exciting time, but it's also critical, so don't expect a sugar maker to give you a drill and say, "Have at it." But, even something like prepacking the line, snow-shoeing around all the trees, can help a producer. And with that you probably would learn a lot just by talking to them. I would advocate for joining the [00:34:00] statewide association, Vermont Maple Sugar Makers Association. You get a lot of information there. There's county organizations you can get involved with. There's a lot of information. Even though on paper producers are sort of competitors, there's just a tremendous tradition of sharing information. You learn a lot from avoiding mistakes. We've all made mistakes in sugaring. It's a great way to learn before you really dive in. A small evaporator, [00:34:30] backyard, getting the kids involved, that's a really great way to get started.

Ric Cengari: I am almost positive that anybody who's got a backyard operation, once that sap starts to flow and they start to boil, they could use another hand of someone who would like firsthand experience learning what it exactly is. Mark, what do you enjoy about sugaring?

Mark Isselhardt: I've been in this for a long time and I didn't grow up in a maple family. I grew up [00:35:00] in Beddington. Even then, in school groups you visit a sugar house. That's laid down early on as a memory. In high school, I helped some friends with their operation. I think the thing that strikes me the most is how it's a year round endeavor. It's not just the six weeks that get all the attention during the sap flow. It's like what Sarah said, it's cultivating a healthy forest and being out [00:35:30] there in the sugar bush when it's not four feet of snow and blowing sideways. It's also those times when the trees are making the sugar that we're going to harvest the next coming season. The year round aspect of sugaring, I think, is really probably my favorite because it's the whole year. It's not just a short period of time.

Ric Cengari: All right, Mark. It's grading time. Now, the grade names, they changed names a few years ago. Let's [00:36:00] go through what was and what is when it comes to grading.

Mark Isselhardt: Sure. Actually, the grades have changed more than just the most recent time, but that's the one that a lot of folks ... The old way was the one that a lot of folks were familiar with.

Ric Cengari: Yeah.

Mark Isselhardt: We used to have a system where it was grade A, grade B, and grade C. Grade A was divided up into fancy, medium amber, dark amber. Then there was a grade [00:36:30] B. Then there was grade C. I won't get into the whole long process of changing the grades but one of the big motivations was consistency. Vermont produces half the US crop, but Quebec produces a huge amount of syrup. They produce 70% of the world's syrup. There was a move from the industry to harmonize the grades and to have consumers ... [00:37:00] It's really a consumer focused change. It's so that if you're in a grocery store in, say, Arizona, and you see two bottles of syrup. One is grade A, one a grade B. If you can afford both, would you probably go towards the grade A thinking it's superior in some way? It's really just to avoid confusion in a lot of ways.

Definitely was a lot of concern, or some concern, about changing the fancy designation. Folks can [00:37:30] still use "fancy" as a marketing term. It's not the official grade anymore. The other thing that was added, a flavor descriptor. Instead of just "golden" it's "golden with delicate taste" and it's "amber with a rich taste." It's trying to communicate with the consumer of what they might expect if they've never had syrup before.

The last change was on the dark end of the spectrum. It used to be if it was darker than grade B you couldn't sell it to a consumer directly, [00:38:00] it had to be in a five gallon container or larger. But a lot of the consumer research showed that consumers really like that strong tasting stuff. They eliminated that lower limit. As long as it's not off-flavored you can sell very dark syrup directly to consumer. It opened up more opportunities for marketing for producers. That's the snippet of why it was changed.

Ric Cengari: Yep. All right, let's take a call. Bill's joining us from Wooster. Hi, Bill, go right [00:38:30] ahead.

Bill: Good morning.

Ric Cengari: Morning.

Bill: I have a question here primarily about flavor. I wanted to know if there's much difference in flavor between the Sugar Maple, and Red Maple, or Soft Maple. The reason I'm asking this is I got an old sugar bush. I only tap about 100. I'm a hobby tapper. I've had a lot of wind damage. It's an old orchard, actually. The sugar house was built back in the 1940s. With [00:39:00] the wind damage I'm losing a lot of my Sugar Maples. But I do have some Red Maples that have come in. I've tapped a couple of them and the sugar content on those that I've tapped have come in around 2% usually. My question is, is there much difference in the flavor between the Red Maple and the Sugar Maple?

Ric Cengari: I love that question, Bill. Let's see what Mark has to say about that.

Mark Isselhardt: Sure. That question has been out there for a long time. [00:39:30] My answer, the data is pretty thin on the actual answer to that. I would say that there isn't a lot of data to suggest there's a major difference. But that being said, we haven't done the exhaustive work. There is a plan at Proctor, the Proctor Maple Research Center in Underhill, to do a very large scale commercial level, a 3x10 evaporator scale of just Red Maple versus Sugar Maple. [00:40:00] That's never been done. All the work that's been done has been on a very small scale. Bill, I love the question. Folks have definitely asked that and the research has been slow to catch on. I would say ... I'm comfortable saying there's not a huge difference, but we're in the business of actually collecting data in a controlled way.

Ric Cengari: Nice.

Mark Isselhardt: Stay tuned, I guess. The other thing, just to tie [00:40:30] it in to what Sarah was talking about with species diversity, Red Maple would count towards that diversity requirement. Forest Tent Caterpillar, they turn their noses up to Red Maple, believe it or not. I've been in sugar woods where all the Sugar Maples are down to just the veins, basically, on the leaves. And the Red Maples look fine.

Ric Cengari: Interesting.

Mark Isselhardt: I'd say it's a good thing to include that diversity. Sorry I can't give you a definitive answer right off the bat. [00:41:00] I think a year or two and we'll have it for you.

Ric Cengari: All right. You've dropped off some things for me to try. We better get to that because we only have a few more minutes.

Mark Isselhardt: Okay, great.

Ric Cengari: What am I doing here?

Mark Isselhardt: Okay, you should be looking at four bottles of syrup labeled A, B, C, and D.

Ric Cengari: Right.

Mark Isselhardt: Why don't you take bottle A and open it up.

Ric Cengari: All right.

Mark Isselhardt: You have a spoon handy?

Ric Cengari: I do, got one right here.

Mark Isselhardt: Okay. The basics of flavor grading syrup is to always look at what you're about to taste. [00:41:30] And smell it, first. I learned that from having a son.

Ric Cengari: All right.

Mark Isselhardt: Always smell what you're given, first. Then put it in your mouth and taste it.

Ric Cengari: Okay, that's got a nice, mapley, sweet flavor.

Mark Isselhardt: Yep.

Ric Cengari: It's a little lighter in color than most of the other bottles here. That is A.

Mark Isselhardt: Nothing bitter, nothing biting [00:42:00] at you?

Ric Cengari: No, that I enjoyed.

Mark Isselhardt: That right there is sort of a middle of the road, amber-rich syrup. Grade A, amber-rich. It's probably not going to win a ribbon when we get back to having contests at county fairs, but it's also not going to be rejected. It's a nice, middle of the road, medium amber.

Ric Cengari: Okay.

Mark Isselhardt: Take B, now.

Ric Cengari: Now, this is darker.

Mark Isselhardt: Again, look at it, smell it first.

Ric Cengari: All right.

Mark Isselhardt: Then [00:42:30] put it in your mouth and make sure it's coating your mouth, too.

Ric Cengari: [inaudible 00:42:37] There's something a little strange about that, I might say.

Mark Isselhardt: Any flavors that stick out to you, maybe not maple related, but anything that ...

Ric Cengari: Right off the bat, I can't think of it, but it just doesn't have that sweet, pure maple syrup to it.

Mark Isselhardt: Yep.

Ric Cengari: Something like maybe it turned.

Mark Isselhardt: Sure.

Ric Cengari: I don't know. [00:43:00] I don't want to say, "Bad meat," but I don't know what that is.

Mark Isselhardt: Some folks get a tootsie roll flavor from that.

Ric Cengari: Oh, yeah.

Mark Isselhardt: A little bit chocolate-y.

Ric Cengari: Yeah.

Mark Isselhardt: That's a classic buddy off-flavor. That's a off-flavor that develops, a naturally occurring thing. The chemistry of the sap changes. It happens late in the season. You don't have to have a certain amount of bud development. They don't have to swell a certain amount for it to show up, but it is tied toward that end of the season. That would be rejected in a contest and would not fit the grade A [00:43:30] designation.

Ric Cengari: Oh, good. I'm glad to know that.

Mark Isselhardt: All right, go to bottle C.

Ric Cengari: Okay, there's a nice, dark color here.

Mark Isselhardt: Yep. Pour that out to your spoon.

Ric Cengari: Okay.

Mark Isselhardt: Give it a smell. Give it a taste.

Ric Cengari: That is ... that is beyond robust, to me. I would bathe in that. I love that one.

Mark Isselhardt: Believe it or not, that actually has [00:44:00] a defect in the flavor. That is ... do you get any sort of sour sensation?

Ric Cengari: A little bit, yeah.

Mark Isselhardt: A little bit.

Ric Cengari: Now, my tongue could be coated with the other maples, but-

Mark Isselhardt: Right. Flavor is weird, for sure. It's a weird combination of taste and smell, and preference, and all that. That's what we call sour sap. That is an example of sap that maybe wasn't boiled right away and was allowed to sit around. It's especially an issue when air temperatures are warmer in the middle and late in the season. [00:44:30] It gets boiled down and it makes that flavor. Again, that's

a defect that a sugar maker would want to identify and not put in their retail container.

Ric Cengari: You could just send a little bit of that to me. I'll probably down it.

Mark Isselhardt: It's a good point. Folks who aren't in the business of producing syrup, some of these flavors, it's not a chemical or anything, where it jumps out of your mouth, but it doesn't fit the flavor definition.

Ric Cengari: Yeah, I get that, [00:45:00] now. There is a little bit of a tail end to it that's sour, but not so pungent that it made it distasteful.

Mark Isselhardt: All right, one more here. Go to letter D.

Ric Cengari: All right. This is a nice light colored one again. Very sweet. Pretty mapley color, taste to it. I'm not sure. Boy, I'd like to try that again. I'm just going to do this all day long.

Mark Isselhardt: That one, I'll just jump in.

Ric Cengari: Yeah, help me.

Mark Isselhardt: That one has [00:45:30] a subtle ... Off-flavors can be mild, or they can be strong, or something in between. That's got a mild what we call a metabolism off-flavor. It's, again, a naturally occurring thing, nothing the producer did wrong.

Ric Cengari: Yeah.

Mark Isselhardt: Producers should really taste every single batch of syrup they make and recognize that if you're sitting there next to the evaporator, coated in steam, you might not be the first one to pick up on off-flavors. It might be the person helping you, coming in from the woods who might pick up on [00:46:00] it. Make sure you taste every batch and we want to make sure consumers get what they're paying the premium price for.

Ric Cengari: I need to get better at that, but I can definitely taste the subtle little differences. Mark Isselhardt is the maple specialist for UVM Extension, host of the Vermont Maple Minute. Mark, this has been a fun hour. I want to thank you so much.

Mark Isselhardt: Sure, my pleasure. Folks can contact me if they have questions, for sure.

Ric Cengari: All right. That's our show for today. This is Vermont [00:46:30] Viewpoint. I'm Ric Cengari. I'll meet you back here tomorrow.