Welcome to the small farms podcast, a production of the small farms program at Iowa State University Extension and Outreach. In this episode, I talk with Jesse Randall, Associate Professor and extension specialist in Natural Resource Ecology and management about producing maple syrup in Iowa. So Jesse, thanks for being with us here today.

Hi, it's great to be here.

So we just have a few questions about maple syrup production in the state of Iowa. First of all, why don't you just tell us a little bit about where we start what type of trees do we need to do this?

Well, you know, as it's in the name, maple syrup needs maple trees and all maple trees and I will we'll make maple syrup. And so what we normally aim for here in Iowa are sugar maples and black maples. They have the highest sugar content. We can make syrup on the river bottoms of Iowa from silver maples. We can even make them from Box Elder which is in the maple family. It's an Acer. Tastes is a little different, sugar content varies widely by species, but here and I will we're gonna aim for two silvers, the sugars, and the blacks.

Okay, great. So just to keep things pretty basic for our listeners, how much SAP needs to be
Okay, great. So just to keep things pretty basic for our listeners, how much SAP needs to be collected to make one gallon of maple syrup?

Jesse Randall 01:13
Well, my good extension answer says it depends. Okay, it depends on which trees you tap and the sugar content, we have what's called the rule of 86. If you have 1%, sugar SAP like you have with Boxelder, you need 86 gallons of raw sap to make one gallon of syrup, which means I have to boil off 85 gallons of water. If I have a sugar maple, I need 43 gallons. Because they're 2% on average. And so you really want to tap the sweetest trees possible to boil down the least amount of water to make syrup.

Laura Class 01:45
Sure. So now you've mentioned boiling down the stack, can you tell us a little bit about that process and maybe some supplies that you might need?

Jesse Randall 01:51
Sure, you know, a lot of folks here in Iowa start with a few trees in their backyard or on their acreage. And they quickly find that the first thing they go towards is a pot on the stove. And they're going to be boiling down and boiling down forever because there's not a lot of surface area. Rapid boiling is really where you need to go. And so what we normally tell people is you go from that pot on the stove or the pot on the turkey fryer burner to a flat pan, you go down to the local welding shop to weld it up a little flat pan that is you know, two foot by three foot and maybe 10 inches tall, and you fill that full of about five inches deep of SAP and you'll be amazed what the surface area will do. And you just you boil it down and you the trick is you don't try to finish maple syrup on a flat pan. You get it close and then you pour it into your pot, take it inside and finish it on the stove where you can really control the heat. So that's the first trick. Don't try to finish it outside.

Laura Class 02:53
All right, sure.

Jesse Randall 02:53
And it's going to take you a lot of fuel, so either firewood or propane under those flat pans. So don't underestimate how much firewood you're going to need.

Laura Class 03:01
Okay, so you know what we better back up a little bit. Can you tell me about what type of equipment we're going to need when we're tapping the maple tree?
Sure. So this time of year, you're going to need you know basically a cordless drill. And basically in the industry they use two sizes of everything 7/16 and 5/16. 5/16 is kind of that new health spout where kind of everybody's going towards if they have vacuum on their system. For those of us in Iowa that don't run vacuum, we're going to run the 7/16 inch so you need a 7/16 inch slow speed drill bit and that's really important. So you need to set your cordless drill on the low setting, you need to use a special bit that doesn't cauterize the wound. So if you turn if you turn your drill up too fast, it'll actually burn the wood on the inside of the tap hole and then you won't get any SAP. So slow speed drill bit, you need a cordless drill, you need a five gallon bucket. You know go down to the Lowe's the Menards The Home Depot, you know you name it, get yourself a brand new five gallon plastic bucket with a lid. Get yourself some tygon tubing and buy yourself a maple spout or spike online. They're 30 cents apiece, and you can you can order them from some different vendors. When in doubt, just give me a call and I'll let you know who will break because they normally want to sell them in lots of 100. We have some dealers that will send you a bag of five a bag of 10 it doesn't matter to them. So get a hold of me and I can get you those dealers. And one of the tricks is when you put the lid on the five gallon bucket, you never drill the entry hole in the top because if it rains, the water's just gonna go right down in. So we drilled it in the very top but in the very side of the bucket and then loop your hose your tygon hose in there and that goes up to the tree and we drill our trees this time of year. I like to tap on the south side of the tree, it's to sideline to warm up first. So the sun's going to hit it, the warmth is going to hit it, and it's going to run the most amount of SAP. So I'm tapping south side of the tree. And I'm going to drill that that sixteenths inch hole about two inches deep into the tree. And I'm going to drill it at a slight upward angle, all right, and that's just facilitates the SAP flowing out. The next key is when you take that, that spike that you're going to tap into the tree, you gotta be real careful driving it into the tree. If you drive it too hard, you're going to split the tree and all the sap is going to run out of that little hole that you've created with the drill bit. The other key is, don't feel like you need to drive the whole thing all the way into that hole, you only want it to go in enough that it seals around the outer bark.

Okay.

All right. And that will create a chamber back there that can fill with SAP, and then run out through the spike and down into the bucket. So, you know, just so people are prepared on an average day, like we have today where it's 45 degrees out and it was cold last night, those are the days we're looking for. So January, February, early part of March here in central part of Iowa, you need those upper 30s, low 40s, then back down into freezing at night. And that freezing and thawing will make the SAP run. That SAP run on a on a nice healthy tree with a full canopy and a full crown like we see on acreages will fill that five gallon bucket in about a day.
Jesse Randall 06:26
Yeah. So we normally tell people per tap hole in a tree, you're going to get about 10 to 12 gallons of raw SAP. So when you boil it down, you'll make about a quart of finished maple syrup from a sugar maple and a black maple. So that's kind of how you gauge the volume of your your boiler what you need there. SAP is a perishable commodity. So as soon as it comes out of the tree, it's going to start to degrade and warm, whether it's sugar water, it will begin to ferment. And so there's been some work done on freezing that SAP until you have enough to boil, the best thing to do is keep it cold, keep it as sanitary as possible, not out in the sunlight where it warms up. But also, we try to boil our SAP within 12 to 24 hours at the max 48 hours after we get it. And so, you want it down 30 to 33 degrees. And that just that stops that fermentation process. As we get later on into the season, where the temperatures start to really warm up and it warms up in the bucket before you ever collect it, you just have to realize it's still going to make good syrup, it's just gonna be darker syrup. Again, part of that, that darker syrup is the physiology and the chemistry of that tree and the sap. Part of it is the fermentation that's going to go on no matter what you can't stop it. And then also that Maillard reaction is where we also get the flavor and the color when we boil. And so if you're sitting there and you're boiling and boiling, all day long, your syrup is going to by default, be darker, it's going to have time over that heat to caramelize. And so you know, if you batch process it in a flat pan and you boil it all day without pulling it off, dumping it into your pan to finish later. Just realize you can make some dark syrup, it's still going to be very flavorful, it's still going to be you know, healthy to eat. It's just gonna be darker.

Laura Class 08:28
Okay, so in terms of you know, producing maple syrup in Iowa, that's not generally what people think of from Iowa. So are you seeing some local markets developing here or what are the opportunities for some small farmers to maybe pick up on this?

Jesse Randall 08:41
It's it's actually huge. What's what's interesting is Iowa for a long time was listed as a commercial producer, northeast Iowa especially was a commercial producer of maple syrup. It was collected by the USDA Ag service statistics, and then they got away from from calling our producers. We've seen a resurgence in Maple, especially in the dairy farm countries in northeast Iowa. Mainly because syrup is such a niche market. Everybody wants to buy local you know, produce it local, buy it local. And the nice thing is the rest of the Maple World you know, the Vermont's, and Quebec's, and New York so the world, haven't really looked at at Iowa as a viable market. And so there's very little competition, and people still want to buy a local product when they can. And so what we're seeing is the gallon of syrup that I can sell in upstate New York for $45 is being sold by our local farmers for almost $90.
Laura Class 09:45
Wow!

Jesse Randall 09:46
And their trees and their sugar bushes in northeast Iowa and across Iowa are just as good as anything you'll find in Vermont, New York, Quebec, the production is there. We're seeing dairy farmers being able to you know invest some of their farm profits back into maple syrup. And that's been allowing them to bring the son home or the daughter home, who they couldn't really afford to bring home based on the dairy and the things, or the crop and the things, they're doing it purely with maple syrup. We're seeing, you know, once you get into 2,000-3,000 tap range, the investment, take a big gulp, it's about $80,000 to invest in a commercial operation at about 2,000-3,000 taps. But I can tell you, those farmers that have taken that leap, the payoff has been about two seasons, and then the equipment is paid off, and their son and daughter have a salary. And so when you look at that, when you look at the investment in equipment, part of our equipment back home is 50 years old, isn't doesn't wear out. The tubing systems that we have, they have about a 10 to 15 year lifespan, but that's a minor cost compared to the equipment. So as long as you treat it, right, your equipment costs are nil by the by the end. And so it's a really good niche market to be in right now. And it's growing and the sky's the limit, we can't meet the demands with locally produced syrup right now. So whether you have you know, a couple 100 taps, great, even if you have 10 or 15 in the backyard, that's almost all sugar producers start. And then they begin to look for more trees. And it's one of those ways, if you got a young family or if you have grandkids to get them out in the spring. Every kid loves to play in mud. My two girls, you know, love it. And they really liked the finished product. They're willing to get outside, they're willing to work. And they don't even understand that they're working. You know, they're having fun. So it's a great, you know, family and community. You know, we have friends and neighbors. They bring their kids and grandkids and we just have fun making maple syrup.

Laura Class 11:55
Good. That's awesome! So it sounds like there's definitely some opportunities for farmers here in Iowa to take advantage of that

Jesse Randall 12:01
Big. Huge. Huge opportunities. And we're going to be running a couple of maple schools and maple conferences for those that are really interested in starting out with maple, and then those that are making maple currently to expand. We're going to have one of those and they're going to have to watch the website don't have the date set. It's going to be late October, November. And then we're also running a couple of hands on workshops. One will be in March, and I wish I knew the date. But it's mid March, we're going to be at a working Sugar House. One of our dairy farmers is opening that up to us. And so we'll walk you through the woods, we'll walk you through the boiling, we'll walk you through the filtering and the canning and the packing. And so yeah, that'll be you know, come and go as you like, throughout the whole day. We're just be running, you know, half to three quarter hour tours, see a working dairy farm if
you haven't been on one before, and it'll be in northeast Iowa. And it's going to be up in Epworth near Farley, Iowa. So it's just a jump off of Highway 20. Towards Dubuque. And then we're going to have about six to seven other workshops and conferences over the next two years focusing solely on producing maple syrup at that beginner scale and in the smaller farm scale.

Laura Class 13:18
Awesome. So can you go ahead and tell us your website so that they can keep track of those?

Jesse Randall 13:22
You know it the easiest way to find me since I'm the only extension forester in Iowa, or extension rural forester I should say, is just Google ISU forestry extension. And we're going to be putting out a couple of more videos on maple syrup making here shortly. So I would say check back, and check back often.

Laura Class 13:41
Okay, awesome. Do you have anything else you want to tell our listeners?

Jesse Randall 13:44
You know, I would also encourage people if they haven't done the pruning around their acreage or their farm yet on their trees. We're having this warmup. It's perfect time to get out and prune your trees. If this warm spell continues, I want all my pruning done by the first of March, you know, SAP is starting to rise so things get a little stickier and a little messier. And for our oaks, we really worry about oak wilt. And so if you have any oaks you want to maintain don't prune them after March 1. So with that, thanks.

Laura Class 14:16
All right. Thank you for being on the show. That's some great information for us to know. This podcast will be available on our website www.extension.ia state.edu/smallfarms. Thank you for listening