Grape Trellising (1)

Hello, and welcome to the small farms podcast, a production of the small farms program at Iowa State University Extension and Outreach. Our podcast covers the opportunities and challenges associated with rural life.

In this episode I was it was Suzanne Slack assistant professor of horticulture with Iowa State University specializing in perennial fruit crops. Brandon Carpenter, agricultural specialist with the Iowa State horticultural Research Station, and Liv Meyer, a graduate student in the Department of Horticulture here at ISU and today we are continuing the beginning fruit farm series, wrapping up our trellising talks with grape trellising. I'm Olivia Hanlon, small farms extension specialist and we hope you enjoy the show. Welcome, everyone. We're glad to have you all joining us today.

Hi Olivia, we're happy to be here.

Thanks for having me.

Like I said, we're talking grape trellising. So Suzanne, I will let you take it away.
Suzanne Slack 01:11

Yeah, so for grapes, we also have to trellis them. This has kind of been our little mini series on trellising, although if you're just interested in grapes and joining us for this welcome, starting off with grapes and trellising is basically how you start your vineyard. So a vineyard you need trellised grape vines trellising for grapes looks different, depending on where you're at, for the environment, as well as literally latitude and longitudes. And part of that is because the species that most people associate with grapes, is vinifera. So the genus is Vitis and the species is vinifera. And that's what we would consider our European grapes. So Chardonnay, Riesling, mirlo, the things that most people aren't familiar with. However, in Iowa and in cold climates, so anywhere pretty much north of Iowa. And then even in New York and Michigan and places where they can grow vinifera grapes, we choose to grow a different type of grape, mainly out of necessity. And they're called interspecific hybrids or cold hardy grapes. And these cold hardy grapes are hybrids. So they are a mixture of multiple different species of grapes. And they are able to withstand our cold winters. So the wine regions of France don't get as cold as they do in Iowa and the grapes there will die after one year of being planted here. So it's a waste of money, don't buy them here, they will die. That being said, due to the past, probably technically 100 years, but prohibition kind of threw a wrench in it. We've really just been catching up semi recently on breeding cold hardy grape cultivars, and hopefully you've gone out to some local vineyards and has some local wines, one that most people will know and they're always surprised to find out it's not the same species as grape and those are concord grapes. So if you've ever had Welch's grape juice, or Welch's jelly, that's a different type of grape than wine grapes. And a lot of our cold hardy grapes are hybrids of grapes, either Concord actually or similar grapes like Concord mixed in with the wine grapes to get up a wine grape that doesn't taste like you're fermenting grape juice, because I don't know how many people have tried to get some Welch's grape juice and put some yeast in it, but it does not taste very good. So because of that, we're mixing all these hybrids together, we ended up with vines that don't know what they want to do. So French species of grapes, so European species of grapes, they like to grow upwards, so that they get the chance they'll they're seeking they want to climb and they will keep going up and up. So whenever we trellis French grapes, we trellis them in a way that doesn't fight their nature of wanting to grow up. And that's typically whenever we see the VSP trellises or vertical shoot positioning trellises They're very pretty. That's what most people think of when they think of grape trellises they're very romantic in a way these nice clean walls of grapes growing upwards. However, when we mix them and hybridize them, the American grapes or the grapes like concord grapes don't like growing straight up. They like growing down or they like growing out. So if you try to put them on a VSP, you're fighting the inherent nature of the plants, and they don't like it, and it's a lot of work and a lot of extra labor. So let's talk about what we can do in Iowa and cold areas like Iowa where we can grow cold hardy grapes. Brandon, do you want to talk a little bit about some of the other types of trellising that you can do. That's not VSP?

Brandon Carpenter 04:51

Yeah. On the farm here, we've had a few we've done the VSP. It's a lot of work on a grape that doesn't want to go straight up so you can still do that. VSP, it's, I think a little easier to harvest than a single high wire or double high cordon. But we've also done, I'll start with maybe the most obscure and move on to what we kind of use. And so like, the most obscure that I've seen here on the farm was called a six cane Kniffen. And in this growing system, the trellis has three wires, a wire at six feet, a wire, I think about maybe four feet, or a little, maybe over four feet,
and then a wire down at about 18 inches and or two feet maybe. And so you've got basically three wires going down the length of the trellis, you grow the trunk of that grape vine up to the top wire, but the trunk is really all that's permanent on the six cane kniffin. At each wire, you would leave two canes, which is where it gets its name from. So you've got three wires, two canes, each one going right on going left, and you would leave your number of buds. So you know, you do a balance pruning, I don't know how much we want to get into that here. But if you're doing a balanced pruning, you're taking the weights of the vine, and you're trimming it back at pruning time to a certain number of buds based on the weight of what the previous year's growth, and that helps the plant balance between fruit and vegetation, which is what you kind of want. Well on that six cane kniffin, you're leaving all of those buds. So let's say you needed 50 buds, you would divide 50 by six, and you would leave each of those with around probably seven or eight buds per cane. And then one of the nice things about this is you get a lot of fruit right close to the trunk, so you kind of know where your fruit is on that vine. And you've spread that out over these three wires. So it's kind of spread out. But the problem is, especially in a northern climate like this, and with a cold hardy grape, the bottom canes are always shaded out by the top cane so they never go through the winter quite as well. They never produce as much, you know, as big and beautiful of a fruit cluster. And they tend to winter kill down there a lot easier than the canes that are up at the top so you get a thicker part of your cane up at top. And you can imagine this, you know, as you're going through the summer, the top shoots that have come out and are creating that vegetation will be shading out the next ones down, and then those next ones down and the top ones will all be shading out the bottom one. So it's a neat trellising system, but it's maybe not necessarily the most practical for our area. When your trunks get big and gnarly and they've got these, you know, kind of knuckles on the side where these canes come out of they really are a neat looking trellis. So maybe it would be something that you could put, you know, a line have these in front of a winery or something just to demo it and have that look of that six cane kniffin. And the more practical here in Iowa is the single High cordon which is kind of the standard with most of your grapes that come from the labrusca family, which is what the Concorde is, I think I'm not sure on this. Maybe you can correct me if I'm wrong, but I think riparia also kind of has a droopy and it's another common native to North America grape, I believe. And I think it's kind of got a droopy growth habit, but I don't know that for sure.

Suzanne Slack 08:18

You're right. A lot of Northern grapes have the right period background a lot of the older cultivars do the newer breeding programs don't use riparian as much, because it's really hard to make them not taste bad. They have a lot of secondary metabolites in them that make it through the fermentation process. And they ended up smelling and tasting off would be the nice way to put it some people associated with boxiness. Personally, I think a lot of the labrusca background grapes have a box odor to them, smell taste to them, like what I imagined foxes, taste drinking, but he was smelled a fox. Yeah, and then there's the those that are in different regions. Maybe you've heard of muscadine grapes. So there are different species there rotundifolia and they're from the southern United States and you can also make wine out of those. The muscadines also, depending on the cultivar, they will want to either grow up, down, left, right, and then the right periods are the same. So some will grow up and some will grow down. But unfortunately, it seems like we really like the ones that grow down for the breeding purposes.
Well, back to the trellising, if your growth habit on the vine is downward, that single High Cordon it kind of makes an easier management, you don't have to try to place the shoots up like you would in a VSP and you don't have to go back through and comb the shoots up through those wires that are basically like a basket holding in the vine. It's pretty simple. When you start out that trellis. The first year there's a little bit of work because you put bamboo out, you'll stick bamboo in next to the plant and then tie that you'll have two wires on your trellis. So you've got the single high wire, which is at six feet. Six foot is really a good round height for most people to pick and do the work for pruning work and stuff like that. But it also gives the plant enough room to grow. If you're balanced pruning, like we talked about a little earlier, if you're balanced pruning it correctly, your shoots, your new shoots every year should be about six feet long, six to eight feet long. And that way, they're not growing down and onto the ground and throughout the vineyard so bad. So six foot is where we like to try to put a trellis single high wire and the Geneva double curtain. And so you have that wire at six feet, and they'll have another wire down at about three feet, three, maybe three and a half feet. And between that bottom wire in the ground, we'll put a bamboo stick, or there's also some systems where you can use a cotton rope, and is a little clip that you drive into the ground, you tie the rope onto it and you drive it into the ground and you need something for that vine to be tied to in the earlier and then you tie everything that grows up to that bamboo stake or that cotton wire. If we use the bamboo stake, our cotton wire will go from the bottom trellis wire to the top trellis wire. So you still have cotton string out there, it's just not into the ground. And then you try to get that to grow as much as you can that first year you kind of feed it heavily and try to get it to fill in the space, what you'd like to have is that trunk established the first year, and then you can start to establish your corridons, which is what the arms basically if you if you imagine this spine would be a tee, so it would have a trunk that goes up to the top wire and then two s, which are the arms that go out and we like it to space ours at eight feet. So each vine gets eight feet, four foot to the right of it and four foot to the left of it. And then those corridons when you establish those, the second year, you'll pick the strongest shoots that came off the top of that trunk that you had established the first year. And you'll position those and select a good hopefully select good ones to be your corridons. And then that's where your shoots come off. And that's you prune back to the corridons. And they will also kind of develop a little knuckle where where you want those shoots. And if you've done it right, your shoots are spread out nice and even along that eight feet. And you've got a really good looking vine by the third or fourth year. And now in some places, especially in Iowa, I think we've gotten away from it, because we've had some really cold hardy grapes that we've grown in the past. But if your grapes aren't as cold hardy as they could be, a lot of people will do a two trunk system. So they'll grow two trunks up to the top wire and then bring their corridons off, you know one cordon off of one trunk and one cordon off of another trunk and grow it that way. That way if you get a frost kill, and maybe there's a I don't remember if it's crown gall or something that you can also get if they're stressed out because of the cold. But regardless, if one of your trunks dies, or one of your, your cords goes down, you're not out of a vine for a few years while you're growing back a trunk, you can just grow back that second trunk and kind of use a new cordon off the single trunk that was left. And I've heard in some places they even grow more than two trunks. That way if two or three trunks are four or five trunks, if you have a few die, you're not left without something. Is that correct?

Yep, that's correct. It's really common for people growing European grapes in the areas where it's probably slightly too cold. But most of yours you can get away with it. They'll grow up
multiple trunks and just assume that half of them will die every year. It works really well. But unfortunately for us and Iowa at least we’re two away from that marginal for that to be successfully they’ll die down to the roots. Just a clarification. It’s not crown gall is the problem. It’s bochaspirea. It’s a fungal. Yeah, so like it’s actually a big deal in Iowa and other cold regions. Are these trunk declined diseases, especially, we’re not exactly sure all of how it gets in. Some people think it’s herbicide damage. Some people think it’s wind damage, some people think it’s just cold damage, and some people think it’s able to invade on its own. I’m a little skeptical of that, just for my background. So basically, there’s all these different factors that go into figuring out how to trellis your grapes Liv as someone who's worked in Geneva double curtain and a single high wire curtain as someone who's worked in it, how do you feel about those two systems?

Liv Meyer  14:37

As far as going in there and just general like maintenance with pruning and harvesting and stuff like that

Suzanne Slack  14:43

and spraying them? Yeah.

Liv Meyer  14:45

Okay. During the winter when we're doing a lot of our pruning and stuff like that, I prefer the single wire just because it’s one trunk two cordons on that single wire so it’s really easy to just go through with your pruning shears clip stuff off. And it’s easier to get your counts to Brandon had mentioned that balance printing method and things like that with double curtain, multiple wires. So you're having to go back and forth, sometimes it gets a little bit confusing to when you're pruning because, you know, obviously, you've got the way that we've got it in a block, there's alternating usually like two trunks on one side and then one trunk on the other. Sometimes there's overlap between the blocks and things like that, because they're a little bit longer, those cordons will stretch out a little bit longer. So sometimes it gets a little confusing to and trying to train and make sure that those cordons don't overlap too much when you’re working with them. So as far as pruning goes, I think I like the single wire a little better, just for ease. But later on in the season, if we talked about spraying, I really liked the double curtain because I feel like it’s a lot roomier and just nicer overall for those pesticides to be able to reach the target. versus, you know, when I'm spraying in that single curtain, sometimes I come away with Okay, yeah, I've coated most of the vines, but it's a bit denser, I think. And I get a little bit nervous, especially if maybe the pruning didn't go so well, you know, or shoot positioning didn't go so well, where there's less air and sunlight getting into the inside of that canopy that's developed over a period of time. So that makes me a little bit nervous. And then I think harvesting too, there's also a preference because of the way that the vines are trained on that double curtain, it’s a lot roomier. And it's easier to go in and clip off those clusters and things like that and put them into our buckets versus that single wire. Again, based on pruning and shoot positioning and things like that. If it's been done if it's been done well that season. And there's a lot of factors that can play into that. But sometimes with that single curtain, you know, you've really got to kind of dig through and then something you know, you feel bad if
you break off a chute, which happens unfortunately, it happens a lot more in single curtain at least with my limited experience when we've been harvesting. So pruning wise, single curtain, but everything else spraying harvesting, things like that I'm even shoot positioning too, I think it's a lot easier and that double curtain as well.

Suzanne Slack  17:12
So pros and cons. Basically, there's pros and cons to both. So that's why a lot of people sometimes were like, Oh, we're just gonna go single, high wire, it looks more aesthetically pleasing, and it's easier. But then you wind up in situations where the double curtain is actually better. And some of that is cultivar specific. So the two cultivars that we have on both our marquette and la crescent. And I think and someone can correct me if I'm wrong, but I'm I'm whenever I'm these vines were established a while ago, so I'm just talking about them right now. It seems like the marquette does better on a single high wire and la crescent likes the double curtain more.

Brandon Carpenter  17:50
I think that's correct. Yeah.

Suzanne Slack  17:52
So it's even cultivar specific. Again.

Brandon Carpenter  17:54
Yeah, I would agree wholeheartedly with Liv's assessment of the two. The harvesting, in the single high wire is kind of a pain when you've got a very vigorous, you know, something that likes to put on a lot of vegetative growth. I think that's the number one reason to maybe put up a Geneva double curtain is if you've got a vine, this extremely vigorous, you can spread that you're still going your pruning weights are still going to be the same for the balance pruning. So it's, you know, I think Marquette is 30 plus 10, or whatever you know, and with a maximum of 50, or 60. And so you're pruning the buds that you leave out there, after your balance pruning is going to be the same depending on the weight of the vine, but you've got double the space. So I don't know if we had described the Geneva double curtain, but basically, it's very similar to the single high wire, except you've got two wires at six foot tall, and they're held out by kind of a tee, we've got metal tees, I've seen wooden ones as well, just two by fours screwed to the side of the trellis. And then the wire is held out. I think it's about 16 inches or 18 inches off of the center of the trellis. And you grow, we still use the eight foot spacing between vines, but basically instead of getting eight foot so four foot on either side of it, it gets 16 foot so it gets eight foot so you grow the cordon from a vine to the trunk of the next vine down either the right or the left high wire, you start off on the right side of the trellis with the first vine you'll take the next vine to the left side of the trellis and it goes from the trunk of its neighbor to the trunk of its other neighbors. Each spine gets 16 feet. And you can imagine you're putting that same number of shoots on that much more area. There's better wind flow through it. It's easier to get in there and harvest like Liv said it's easier to spray. I think ours is maybe a bad example
because we had some fertility when we planted it. All of our double curtains on one side and all of our single curtains on the other side of the vineyard. And I think we had some fertility issues on the side that our double curtains on. And so the vines never established as well down there. And so I don't know that it's a really fair assessment for a double curtain system. I think if you had started them off, maybe a little better than we did, you would have better results, especially with a more vigorous vine. And I think la crescent tends to be a little more vigorous. And Marquette seems to be a little less. But you know, that's, again, maybe just what we see.

Suzanne Slack 20:35
Those are all good points. I will say our double curtain also got hit worse with herbicides this past year too. So also hard to judge a system whenever you're dealing with other factors.

Brandon Carpenter 20:46
And the derecho put every single trellis in the double curtain on the ground, you know, we had 80 plus mile an hour winds for an hour during a storm a couple of years ago. And all of those vines that ended up on the ground, we do a lot more research in the single high wire vineyard already. So that was the first one I stood up when me and Liv went in there to stand it up. We started off with that single high wire, got it all off the ground in you know, maybe the first three weeks, I would say and then Liv had to go back to school, which sucked for me. But I ended up putting the rest of the double curtain up. I think it was into October or late October before I got them all stood up. So that was really hard, I think really hard on our vines might have also been part of the factor.

Suzanne Slack 21:36
One of the pros or weird things about our hybrid grapes is we don't have to graft them. So they're all cuttings. So they don't have graft unions, like the European grapes are all grafted. For instance, we don't have to graft ours so they don't snap. If there's winds, you can easily move them around. They're very flexible. They're more traditional viney vines like so if you've ever tried to knock vines down off a tree, you know what happens, they're usually fine going back up figuring it out. So there's another training system that I just wanted to mention real briefly, that's new for people in the North, it's not as new for people in the South. It's called the Watson training system. So we're actually going to put in a demo of it this coming year at the farm. So Field Day, come check it out. But it's kind of a mix between the Geneva double curtain and the single high wire curtain. So this was actually developed by a grower in Texas, whose name is Jerry Watson. That's why it's called the Watson system. And sometimes, you know, researchers may think we know everything, but sometimes being out there and going out and seeing it gives you good examples and good ideas of maybe better systems. So Jerry did this divided and single canopy system. Basically, it's like a single high wire curtain. So it's one wire, but then it v's off again. So there's three wires at the top. So you train that vine all the way up, and then you kind of cascade them over. So it creates almost like a fountain of vines. So you get kind of the benefits of both worlds, you have the protection of the grapes. They're also easier to harvest than the single high wax or a huge mess. And it seems like it's working really well, especially for muscadines and some of those other weird vinifera. And we're just starting to try them out on the hybrids. And yeah, we'll talk more about it sometimes when stuff is
really new. So this system is less than 10 years old. So there's not a lot of data on it. So we don't know, yields or anything like that. But from harvesting and management. This one seems to be the easiest one so far. What about posts? So can you use metal posts in vineyards?

Brandon Carpenter 23:44

Ah, yeah, the short answer is yes, we don't. We use wooden posts, I think mainly just our ability to get them. It's also the wooden posts, we put our wires up with staples on the metal posts you have to buy, they make specific metal posts that have kind of a notch cut out of them. So you can put the wire in the notch. I haven't priced the metal posts. So I don't know what the prices are the wooden posts in the past were always fairly inexpensive for posts. COVID and shortages and things over the last couple of years. Price of wood has gone way up. I hear it's coming back down. So you know maybe they're going to be affordable again. But I've seen recommendations, you know, if you're doing a six foot trellis that you want an eight foot post and you want a little longer in posts and we could talk about the styles of end posts, but you might want a little longer in posts so you can put it farther into the ground, but the recommendation is eight foot and then you've got two feet in the ground. I think with our winds here in Iowa and the amount of mass that we have in those vines, I think a 10 foot post with four foot in the ground, six foot out of the ground is maybe a better way to go. You don't have to have a stick a post as we talked about on the Apple orchards, we usually go with three or four inch line posts, and then five or six inch end posts. So you're end posts are a little stronger, but your blind posts don't necessarily have to be. And again, that's something that you can decide on. I think four inches is probably minimum here for our winds. But if you're in a protected area, I've seen three inch posts before and they seem to hold up well, if it's protected. You know, I talked about putting the wire up with staples on the wood, there is a specific way you want to drive the staple. And you can find it on YouTube how to drive a staple into a post, you'll get an answer to that. But basically, there's a bevel on each side of the staple, and the bevels oppose each other. And you want to drive that into where those bevels forced the staple to spread as it goes in. And that's going to give it a little more staying power, it's going to hold a little better, you also don't want to drive it, both legs of the staple into the same grain, those lines that kind of form on the side of posts, you don't want to drive both legs straight up and down because it'll split a lot easier. So you want to crook it off to the side, maybe 20 degrees from vertical and drive it in that way. We use on ours, the nine gauge high tensile wire, and holds a lot of weight. I've seen kind of a monofilament of plastic. And we've you know, I've talked to people at trade shows who claim that their monofilament is better than the steel because it's got some give and it flexes better. And I'm still, I guess maybe too old or something I'm scared of trying this new technology, I feel like maybe in the wintertime it might be brittle, you know, we get really cold, maybe it might be brittle. How's it going to hold up, you've got three vines between trellis posts. And sometimes each one of those vines will have 50 pounds or more of grapes, you know, or maybe even more than that. And all that vegetative growth where the few 100 pounds for that wire to hold up. And if you've got a single monofilament polymer type line, I worry about the strength of it, but they claim to last as long as our metal lines and be every bit as good. I don't know price on those either. I haven't really looked at price. But I do know that the number nine high tensile wire is fairly inexpensive for what you get.

Suzanne Slack 27:22

Those are all good points. Brandon. Everyone wants to do it as cheaply as possible, but had to
remember how much weight your vines or those trellises are supporting at the end of the year. And there's nothing worse than getting a freak wind storm mid August and seeing all your grapes on the ground. Apples too, any fruit. trellising is great because it helps us get more fruit. But more fruit means heavier stuff for those trellises and vines or plants. So give and takes anything else that anyone wants to mention about grape vine trellising?

Liv Meyer 27:55
Brandon had brought up some I use layman's terminology to discuss some parts on the cordon so that knuckle that he had brought up earlier. I'm assuming you're referring to the spur?

Brandon Carpenter 28:05
Yes.

Liv Meyer 28:06
And then the shoot is the cane. And so I don't know if either of you wanted to weigh in on if trellising factors in and varieties and climate I'm sure as well into cane pruning, versus spur pruning methods for grapes.

Suzanne Slack 28:22
Oh, that's a hard one. I think that's like a matrix thing. Right. So yeah, your training system is going to have some influence on that. But I think that's a cultivar decision, too. So do you have a really, for lack of a better term, leggy cultivars? Or is your site conducive for your grapes to be really vigorous? So if you have a more vigorous site, and sometimes unfortunately, you don't know this going in, and that's one of the reasons why we always suggest starting small and adding more vines as you go instead of planting all 10 acres at once. doing like an acre at a time is a great idea. Just because what happens if your soil is perfect for grapes to go Gangbuster and you're ending up with the all these full canes, all these just really vigorous shoots. And then how do you determine what should you prune back all the way like how much you should take off, especially for the hybrids. Unfortunately, there's just not been a lot of research done on them. Most of the research has come out of what Iowa State Minnesota, South Dakota, North Dakota, a little bit out of New York, but there hasn't really been a lot of people just doing this stuff. I one of my predecessors did a lot with it. But some of those cultivars that they were working on are no longer in favor. So now I have new cultivars that no one's looked at.

Liv Meyer 29:45
Well, I've heard for climate too since we've been talking about hybrids and cold hardy grapes and stuff like that. Cane pruning is more preferred than spur pruning, just because if you're leaving a lot more of that cane on there, some of the more exposure to some of those colder
conditions may be detrimental for growth and development later. I've heard that, but I'm not sure if that's, you know, there's any weight behind that.

Brandon Carpenter 30:10
Not sure if I understand it, right. But I think one of the big differences is, let's say you leave cane from last year, you've pruned back a cane, and you've got three buds on it, you know, so one of the ideas is that if you leave multiple buds, two or three buds on each cane, if you get a late frost, it'll freeze off the one, but you can always rely on the second one. And if you look on our cultivars anyways, the last bud on that cane will usually break first. And it's almost like it suppresses the break of the other buds on the cane. And so if it gets frozen off, you know, that second bud down, it's not being, you know, hindered by the hormones from that first bud. And it'll grow, it'll start to grow. And so I think there are ways to kind of strategically prune to where if you know that you're going to get a late frost, you won't lose all of your fruit production that year. One of the big downfalls to that is at some point, that second bud is going to break, regardless of that first, but being broke. And so you would need to go in and shoot thin later. And if you've got time for that, that's great. You know, then you can go through and you can select the stronger of the shoots that are coming out of that cane from last year, and keep those if you don't go through and shoot thin, then you over crop, and you get kind of spindly shoots the next year, so your canes aren't as good select. What I like to do is I prefer that we do our initial pruning in early March. So I'd like to be into the vineyard in early March, do our initial pruning and then hold off until maybe the mid April, before we go back and do our balanced pruning. I'd like to do our balance pruning right before we do our sulfur spray in the spring. And I think that's kind of early April, and then used to be that you knew you were gonna get a hard freeze somewhere in the first part of May, you know, maybe one of the not so bad sides of climate changes we've seen that seems we have two more weeks in the spring and two more weeks in the winter, where we're not freezing as much we still get these freak frost's you know, maybe late into mid May. But we don't get these hard freezes as often. And so maybe we can do our balance pruning early on, and not not worry about it so much not leave extra buds out there to have to shoot then later, you know, in late May, or whatever.

Suzanne Slack 32:39
Well, I'll add to one of the benefits of doing the double pruning. If you do double pruning, you're less likely to have trunkrots, or like wood decay fungi get in. There's been a lot of research done on that mostly European grape vines. But if you go in and prune and then come back and prune again, you'll basically those first cuts you make are really susceptible to those wood decay fungi getting in. And then when you cut again, you cut out the wood decay fungi because they're slow, but you know that you'll get them. And then by the time you do the second pruning, like Brandon was saying, they'll they're ready to go. Once you do the second pruning, they'll start to open up and they're more likely to heal themselves and some others have some other benefits.

Brandon Carpenter 33:22
Now, would you want to do that second printing then before the sulfur spray that we do? Is that are we doing it right?
Suzanne Slack  33:29
Yeah, you'd want to do it before the sulfur like right before the sulfur spray, it would be great if they were back to back. Especially if that's if a bud rot or Vine decline has been an issue in your vineyard. That would be the best management technique. There's a couple of different programs for instance, in North Carolina, they're trying it on muscadines and European grapes, wine grapes, trying to figure out which fungicides, if any actually work on these pests. But the double pruning seems to be the best way just to eliminate them from even needing to be controlled by fungicides because they're not as they're not there. As an entry point. Like I said, I don't think they're a lot of them don't get in on their own. They need a wound and a pruning cut is a very big wound.

Brandon Carpenter  34:11
Came out of the trellis and into the pruning side of things. Yeah, we

Suzanne Slack  34:16
jumped into pruning. Oh, no, I mean, okay, so let's get back on track. We'll talk a lot about pruning. Later on, that might actually be a good subject for the next one, because it's timely people are starting to think about it for people listening as we post them, or who are finding out about them from different ways. But yeah, so thanks, guys for talking about grape vines and for talking about how to trust them today. We look forward to talking again soon.

Brandon Carpenter  34:41
Thanks again for having me.

Liv Meyer  34:42
Thank you.

Small Farms  34:43
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