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 real life.

In this episode, I visit with Suzanne slack assistant professor of horticulture with Iowa State University specializing in perennial fruit crops. Brandon Carpenter, agricultural specialist with the Iowa State horticulture Research Station, and live Meyer, a graduate student in the Department of Horticulture here at ISU. And today we are moving on from trellising and beginning with some pruning in continuing the beginning fruit farm series and talking mostly about Apple pruning today, Suzanne, why don't you chicken wine?

Yeah, hi, Olivia, we're back with another episode of how to grow fruit in Iowa and the Midwest in general, on a smaller scale. And today, we're going to be focusing on pruning apple trees. So this time of year is when most people start thinking about pruning their apple trees, typically February, mid February is when we want to start really getting out there and getting into it. So let's talk about why we choose February as the pruning month for apples.

So February, we're in winter, and winter, the trees enter this sort of dormant phase, so they cease a lot of their functions that contribute to growth during the summer. And it's optimal to prune during this period, because one of the biggest things is that a lot of those harmful organisms that we're really trying to combat during the summer, also aren't active during this time. And when you prune, you're essentially creating a wound in that tree. And you know, just
like a wound on our bodies, it's an open vulnerable space that when exposed to less than ideal things, you know, can contribute potentially to a decline in health, I can damage that branch, things like that. So winter is, yeah, winter is just the optimal time to print. That's the biggest reason, I guess, off the top of my head. What are some other reasons,

Brandon Carpenter  02:23
I think you hit the big reasons. You know, a lot of growers will actually start in late November, early December, as soon as the leaves come off the trees, if they've got a huge orchard and labors an issue. We used to do that here at the farm, we had a lot more freestanding trees, which are larger, they take a little longer to prune, we had to start at basically Thanksgiving, we started every Thanksgiving break with pruning, and we were outside pruning until March when we would switch over to grapes. And sometimes we didn't get all the way through our orchards, you know, just not enough labor hours and stuff like that. So it's kind of a balance, it's best on the tree, if you do it later in the winter, because then you're not going through the worst part of winter with that wound that open wound, you know, and those cells exposed to the cold, it'll spend the least amount of time injured before it can heal again, basically. So you're trying to balance that a bit. And it's also nice to not go out in December in January when we're at, you know, today we're at, I think we were minus nine when I got up. Now it's up to a balmy negative three. And you know, it's nice to not have to be out in the orchard on a day like today, you know, if you can hold off, you don't have too much to do.

Suzanne Slack  03:37
Those are all good reasons. So the big one again, so if you have a larger planting, a lot of people do start as soon as they can. But there's some disadvantage of that, like the less wound healing for instance, there's also still a lot of fungal organisms around the end of November still hanging out. So there's a little bit error for that a lot of people will prune their least susceptible cultivars earlier. So for instance, if they had like red deliciosas, or something that has a little bit more hardiness or some of the rots, they would do that versus getting into some of their more sensitive stuff. The other reason that it's good to wait is whenever we talk about dormancy, so we've mentioned dormancy, when we're about this time of year the trees are pretty dormant, so still in December, they're still having a little bit of stuff going on maybe especially past couple years we've had all those warming spells the trees do react to the warming spells we see a lot of that in diabetic of conifers actually can be contributed to that rapid warming cooling. So big problem in Iowa not related to fruit though, so we won't get too into it. Just an example. Yeah, so that's why we wait until the dead of winter. Some people do on Apples do some summer pruning, and that's very hot topic. This is one of those the horticulturalists versus plant pathologist situations, horticulturalists say yeah, go ahead and Summer pruning And the plant pathologists are saying absolutely not. Why would you do that? So there's a balance there that needs to be struck whenever we talk about summer pruning, but for this episode, we're going to focus on winter pruning. So now that we know why we do winter pruning, even when it's super cold, and we might need snowshoes to go out into our orchards this time of year to prune our poor trees, let's talk about why we prune. So why are we going out there when it's negative three degrees and our snow shoes to prune our trees? Because it seems like a lot of work?
Liv Meyer 05:27

Yeah, that's a good question. Because it does get very, very cold and my fingertips usually get at the worst. And once your fingertips go, it's just downhill from there. biggest reason is to prompt optimal yields. For example, during the summer, you want to help regulate growth, as well, when that tree comes out of that dormant phase, and the temperatures start to rise and the daylight gets a little longer during the days. And first off, when you are pruning, the top three branches you really want to look for are if they're dead, damaged, or diseased dead, it's not worth anything for the tree. If it's damaged, you know, again, it's a vulnerable branch, you know, it's not worth anything to the tree. And it could lead to disease later on that you really don't want to have to deal with. But yeah, so getting rid of some of those. And you know, when the tree starts to put on tissue, you're taking off these branches to help allow more sunlight penetration, because we know that obviously sunlight penetration can contribute to improved fruit quality and things like that, we can get that nice color, nice sizing, and more airflow as well. So airflow through that canopy. And if we get more light penetration and airflow, we can really mitigate some of those diseases that love warm, wet, shaded environments. So if you've got a canopy that's kind of out of control, you're not doing Apple pruning during that winter, you know, if it's really dense, we're contributing to those optimal growing environments for some of these organisms. And later on down the line, again, that's just going to be problematic for you. So we're really trying to counteract that early on. And then pruning to you know, we're taking some branches away. So we're taking some potential flowers that turn into fruit, but that's not necessarily a bad thing. Because if that tree starts putting on too much fruit during the growing season, it's really got to work on trying to allocate resources to all of those fruit. And that can really take away from your fruit size, the quality of the fruit, you get a bunch of smaller apples, things like that. And then, in the long run, plant health and vigor are really jeopardized by those actions as well. So what am I missing,

Brandon Carpenter 07:39

I think you hit all of them, you know, kind of the take home message that I got from you is we're trying to balance the fruit production. So that's the number one goal is balancing the fruit production. So you're taking away some flowers, but your hope is that, you know, you're leaving enough out that the tree doesn't go into alternate bearing, sunlight capture, that would be my second year wanting to capture as much sunlight, you can think of a tree or any plant really is a solar panel, you know, that's collecting energy from the sun and doing something with it, you know, collecting solar energy and turning it into chemical energy, I guess. And so you're trying to balance that to where the tree doesn't have a lot of parallel branches, branches over tops of other branches that are shading them out, and things like that. And then in a production setting, like what we have here at the farm, you're also trying to maintain the shape and the size of the tree, you know, mirrors, as you can attest, if it doesn't get done, right, there's always a branch that'll grab your mirror and broken mirrors on a tractor kind of a pain, they cost money, and you've got to take the time to fix them. And then while you're waiting for your new mirror to show up, you've always go, you know, you got to look behind you the old fashioned way by turning your head. And so you know, there's a lot of reasons like that. But those are kind of the main reasons is to, you know, fill the space that you wanted to fill, balanced fruit production and capture as much sunlight as you possibly can. And if you keep those in mind when you're pruning, I think makes it easier to think about what you want to take off and what you want to keep. Yep,
Suzanne Slack 09:08

that pretty much hits the nail on the head. Remember, we're growing Apple fruits, not apple trees, not apple wood. There's not a huge market for small little pieces of apple wood. Unless you have a whittling friend who's rich, I guess. But yeah, so basically, we're trying to strike that balance, which is why we prune it all. So what happens if you don't prune your tree? Some of you might have experienced this but like a backyard apple tree, but in general say, Oh, this winter is really rough. I don't have the labor one year can't hurt. Does it hurt?

Brandon Carpenter 09:41

I think it does. You know, I spoke earlier about you know, sometimes we didn't get all the way through the trees and there were trees left at the end. Those trees always did something we didn't want them to do. You know generally it's the going to alternate bearing. You get a massive amount of apples the year that you don't prune it and then it's really hard to pull back from that once you got it there. And you know, you can chemically thin or you could go out there and Hampton. But if you don't have the labor to get through the apple trees, in pruning, you're not going to have the labor to go out there and hand then when you're also trying to plant things in, you know, if you've got other crops to deal with and stuff like that, it also makes it you know, the tree doesn't stop growing, just because you've stopped pruning it, you can induce some growth. By pruning, the heavier you prune, the more likely you are to get kind of a vegetative flush, I guess I would call it the next year or whatever. But even when you leave a bunch of apples out, there still continues to grow. If you've got a ton of apples on branches, you couldn't break scaffolds off. And then you've got broken branches the next year. So it's, there's a plethora of problems with, you know, unpruned trees in production settings. But even the backyard homeowner that's got, you know, two or three apple trees, you know, if you can keep those thin down, it's easier to harvest, you know, if you're harvesting these for apple sauce or something like that, the more light you get into the inside of the canopy on the tree, the more apples you'll get down into the canopy. If you let a tree grow, it grows into a big, I would say it looks like a cotton candy ball, you know, with a stick and then a big ball on top. And if you've got that, you need a certain amount of sunlight to reach those branches for them to produce the fruit buds that are going to make your fruit the next year anyways. And so most of your fruit ends up being on the outside, you know, 10 to 15% of the tree. And if your tree is 25 feet tall, that means all of your apples are up, you know, somewhere between the 18 and 25 foot area, but the top of the tree where the sunlight hits all the time, and either have to climb up there and an apple tree that, you know, apple trees don't have the most sturdy wood to climb on or place a ladder against. Or you've got to wait for the wind to bring them down to your level on the ground where you can pick them up and use them. And both of those are kind of sub optimal modes of getting your apples.

Suzanne Slack 12:01

Yep. And I just want to mention that if you're selling fruit, it falls on the ground. You can't sell it. Exactly, yeah, so that's only for like if you're consuming it yourself. So there's some there's a lot of really strict rules about drops. So unless you're using tarps and doing everything, according to the guidelines, you can't just pick up dropped apples. So again, it's even less optimal than ever. So one thing we didn't talk about was how much wood is too much wood to take off a tree. So I like going by the 30% rule, I would never take off more than 30% of the tree at one year. 25 is better. When I think of 25 to 30%. I'm thinking of a tree that hasn't been
pruned in like two to three years, you have some massive limbs, massive cleanup. But on average, you shouldn't really be removing that much wood from your pruning, like maybe one or two big branches. But really, if you're doing it right, you're only removing small one year branches, things that water sprouts, flipping things back. Again, tractor blight is a real thing. Tractor blade is when your tree hits a tractor. The blade looks bad on your tree, and then your tractor comes out for the worst to like Brandon was mentioning. So those are typically what we think of when we think of like an established orchard pruning, we don't want to take that much wood out of a big tree. Then the other thing was how much wood to take off. There was something else that I wanted to mention that I thought was really Oh, where do apples make? They're like, okay, so Brandon and I went out this fall. And Brandon's already laughing I can see his face to face. I'm about to say, we went out and we saw someone who said they never got apples from their plants for years. And they had maybe like, I don't know how many plants they had in a row. I think it was like 10 trees, and they had it in this really nice SBA thing. And they never got any apples for it. And why did they not get any apples?

Brandon Carpenter 13:56
This was something new to me. I had no idea of this before we went out there and you taught us this. You've got tip bears and spur bears and apple trees. And I forget now off the top of my head what they were I think they had spur bears, but that's all their Spurs were being created on the top of the apple trees. And they were basically taking that off to keep the aesthetics in check. They wanted a beautiful SBA planting it was kind of a tunnel thing. And all of their fruit production would they were getting rid of it every year when they pruned it. And I would have never known that. That was really interesting. I thought,

Suzanne Slack 14:33
yep, that's exactly what they were doing. They were trying to maintain a shape and by doing so they were removing all their fruit buds. And they thought that they would get fruit buds underneath their tunnel. But again, we just talked about it if there's no light penetrates, those fruit buds will never fully develop. So they were cutting all their fruit off every winter, which is why they never got any fruit for their spur bearing apples and then there's tip bearing apples and then there's this Bactrim. So a lot of our apples are somewhere in between, there's four categories, most tip bearing Tapang with some spurs, some mostly Spears with some two bearing. And then pure spur bearing, most of our apples that we think of and grow today are somewhere in that middle part, there's only a couple that I can think of off the top of my head that are really popular that are on either side of the categories. Like for instance, Granny Smith is a tip bearing Apple, they don't produce a lot of spurs, you have to work really hard to get those nice spurs developed on that tree. So they picked a tree that was not good for their system that they want it to grow. So we'll talk a little bit about cultivar, or, like how to choose a cultivar later in general, but that's one thing to think about with apples and training systems is making sure you're pruning correctly for the kind of tree you have. And what's the point of growing apples, if you're cutting all your apple buds off, whenever we think of budwood so fruiting wood on an Apple is different than fruiting wood on a peach is different than fruiting wood on a cherry is different than fruiting wood on a raspberry. So apples produce their fruit on wood that grew the year before. So if you're pruning to acidic shape, and you're not leaving a little bit of wood, then you won't get any fruit buds. So for instance, if you have like, this beautiful Aspire a gorgeous hedgerow of apples on your property for some reason, and you
keep maintaining it back to like, the wood that you cut, when it was five years old, and it's now eight years old, you'll never get a lot of apples because you're cutting all the bandwidth off. So hopefully that makes sense.

Liv Meyer 16:32
So I have a question. And so when we're going out and we are pruning, with our tools, is there a certain type of cut that people should be making? Or can they just go out?

Suzanne Slack 16:44
Yeah, you guys want to talk about we should really talk about pruning cuts, because they're pretty important for apples. So there's two major ones, there's the flat cut, and we call it a bubble of cut, my undergrads are calling it the slanty cut, that might help some people with their imagination, someone's a flat cutting cut. So whenever we say a heading cut, that's a flat cut. So literally, it's flat. And then there's the angled cut. So it literally looks like a slant that you're cutting into the wood, what's the pros and cons of both, and when are they both used.

Brandon Carpenter 17:14
So we'll use a bevel cut, when we want to induce a new branch in that same location, we'll leave a little bit of wood, we used to leave just a stub you know, an inch to an inch and a half, I sat in on a class or a lecture that talked about some apple varieties are very hard to get to induce a new, you know, a new shoe where you want it. And so they were leaving four inches on some of their branches, they were trimming back to try to induce that. But that beveled cut, I was taught it was called a dutch cut. So if you call it a dutch cut, or a bevel cut, that bevel cut allows for the pooling of hormones. Oh, I I'm not thinking of the right word for it. But the so whenever

Suzanne Slack 17:57
you could a slant, what's going to happen is all those hormones are going to pull into the slants and not be evenly distributed as if it was flat. And what you're going to do is you're going to want that but to the bed that you really want. That's the direction you want, whenever you make that cut is hopefully going to open that direction because of all those hormones telling it to open. So you're basically tricking the plant into saying, Okay, this is the bud that needs to open. So if you make a flat cut, what will happen is, it's kind of like a numbers game of which buds open, which ones don't, it's a lot more random. So it's more about the trees deciding which buds it wants to open. Whereas we want that one that's going in that direction, it's not going to shade out the other branches that are already there. So it gives us a little bit more control,

Brandon Carpenter 18:44
we'll do a flat cut a lot of times where we want to take the branch off and not have it come back. So if we're cutting back to the collar, you know that one will be a flat cut. A lot of this
back. So if we're cutting back to the collar, you know that one will be a flat cut. A lot of this depends on the training system, you have, if you've got a tall spindle or a slender spindle, you're renewing these branches, you know, every three to five years, every year, you're taking a few of your biggest branches off. So over, I don't know, maybe the span of five to eight years, you've got new branches on your tree. And so those you want to induce you know if that's a good place for a branch that you're taking off one of your larger branches, you really want another branch to grow there. Same with the vertical acts. It's got permanent scaffold branches at the bottom of the tree, but all the others up the trunk can be renewed. And so you want to bring new branches into there. Most likely, if the branch is over the top of another branch and one of the scaffold branches or something then maybe you would want to cut it back flush. And then on the central leader, which is kind of a freestanding tree. It's got two sets of permanent scaffold branches. So a lower scaffold first scaffold and then a second scaffold, and then you can renew about that and they're a lot taller tree, you know freestanding, like I said and on those areas a lot. Got more flush cuts on those because a lot of times when you take out a branch, it's going to be, you know, something like a hanger, or it's going to be in a suboptimal position on those scaffolds. And so you're going to be doing a lot more flush cuts on those. So the style of the tree really determines a lot of you know how you're going to approach it as well, when you're pruning.

Suzanne Slack 20:20
Yep, those are all good things. So whenever we're thinking about our trellising systems, whenever we're thinking about what kind of tree training we go into this, the first step of the actual tree training is the pruning. So it's really hard to go in in the summer with an unpruned tree at all and manipulate it the way you want, is really what we're getting into. So there's the dead, the dying, the diseased, the broken, damaged. Yeah, the 3ds. So it's better if it's 3ds. Those are the ones that need to come off, ASAP. So even with little trees, it's good to get those off. Even if they were in good places, there's no point in subjecting the tree to having that there, take it just take it off. Even if it was in the optimal place. It's just a bummer. Is there anything else thinking about pruning?

Liv Meyer 21:09
I think I had one, if we didn't talk about it, you too, obviously have a bunch of experience pruning trees. I'm, you know, fresh in the game. But two part question. So often when I've gone out to prune with Brandon, you know, and he's heard me say this to Him, I just approach a tree. And sometimes, yeah, we've got the three Ds, but sometimes you just look at it, and you're so overwhelmed with where to start. So the first question is kind of related to that. Where is there a general rule of thumb? I know, it depends on the training systems, like we've just talked about. But is there sort of a general rule of thumb outside of looking for those three days on the tree that either of you follow, when you're pruning, keeping in mind that you're only going to take off about 30%? And then the second question, he talks a lot about water sprouts. And I don't know if that's something that we wanted to talk about as well with the way the tree grows.

Suzanne Slack 22:02
Yeah, so Well, I can talk a lot of sprouts. So water sprouts are really aggressive shoots that...
grow really quickly within a year. And they usually go straight up, we didn't talk about crotch angles at all. But that's another thing to think about what apples. So we really want to make good branches that can support the weight of our fruit, right, because we're using a trellis. We're already like selecting weak wood on purpose that makes really nice fruit when you support it. If the angle that the branch is coming off is not gonna be able to support the apples, it's gonna break, you could tear the leader up. And water shoots are basically that they grow straight up. They're really problematic on pears are talking about apples right now. But if you've seen like a pear tree, they kind of look like a paintbrush. So think about it like that. So a lot of certain cultivars of apple trees are worse for water sprouts than others. But they need to come out ASAP. And you can't really train them very well. So the angle they're coming out unless you catch them in like June when they're just starting, and then them out which you totally can do if you can catch them because they will make fruit eventually. And if you bend the angle of them, they'll grow a little slower. But if you don't catch them any seam out in your tree, you just need to take them off, right? Right at their their growing part. If you do a heading cut, or even a beveled cut to try to like undo something on those really, really aggressive water sprouts, the tree is going to put a massive amount of energy into that water sprout apparatus and lesson to the fruit.

Brandon Carpenter  23:31

Yeah, I can only think of one time in Apple pruning that you would even want a water sprout, you know, my way of attacking a tree is the three Ds first that gets anything you know is going to come out of the tree comes out then and it makes it a little easier to see, you know, sometimes the the inner workings of the tree so you can make your decisions. My second attack is water sprouts, I take water sprouts out, the only time you would leave a water sprout is if you had a scaffold branch that you know, maybe it's done something to where it's now not productive anymore. So I would say a lot of times if you over you get an over cropped on the end of a scaffold that scaffold may have been down permanently. And now the tip of that is out into where you're going to need to be running herbicides sprayer, or you know it's not optimal anymore. And if it's pointing downward, sometimes it'll be less productive as well. And so if you had a water sprout that was at a good point on that before that been started on that branch, you could tie that down that first year, just tie it down, leave the branch that's there so you don't induce more vigor in that by making a big cut all of a sudden, and that water sprout will start to branch out and feather and then that could be your replacement the following year. One of the reasons we don't do that here on the farm is we've always got new students every year. So that takes the kind of planning that you Need the same person or someone who knows what they're doing the second year round two, because we found that students will sometimes cut that branch that you've been training for a season out. And then now you're back to only having the deformed branch that you were trying to replace. In my mind, that's about the only time a water sprout is good for anything, is if you're going to try to replace one of your scaffolds or a lateral on one of your scaffolds. And you can tie that down to Europe in front of when you want to take that scaffold or lateral off, and then use it the next year.

Liv Meyer  25:34

And now that we're talking about waterspouts, there's one other question that I had, because we've been talking about doing a lot of our pruning during the winter too. Sometimes I've noticed that during the summer, especially some of these apple trees have suckers at the base. So you know when it snows we're working in, you know, conditions where yeah, we've got to
wear boots because the snow comes up well past our ankles. So are suckers something that you can prune during the summer? Do you have to prune them in the winter? How do you go about doing that? Is there like sort of an emergency associated with pruning suckers, things like that.

Suzanne Slack 26:11
That is another plant pathologist versus the horticulturalist question. That's a good one. So a lot of horticulturalists will tell you to get them out ASAP. As soon as you can. However, you're now creating a wound that leads directly into the root system and trunk of your tree when you're cutting them like that closely. And then you're like really close to the soil, we get rain splash from the soil. I'm not a fan of cutting suckers in the summer. Again, they're called suckers, because well, one, they suck to prune. But then the other reason is because they're literally sucking the life out of the tree. So whenever we do apples, we have a grafted system. So we have two different genetic organisms grafted to each other that are dependent on each other. Now, the situation that we made as humans, if the rootstock can put out its own chutes and screw the Scion, so it's, it would prefer to do that. So that's why it's making suckers. Same thing, if you plant your sign on rootstock graph too close to the ground, you sometimes you can get roots coming off of the Scion, and it will circumvent the rootstock and you end up with like a 40 foot tree. That's a very common mistake that people make, even though the root stock grafting is ugly. So that's usually the well it was aesthetically better to bury it, and then you end up with a 40 foot tree instead of a 12 foot one. Because of that they're constantly trying to outwit each other and be the dominant organism of the graft union. I prefer taking the suckers out in the fall. So that would be what I would take out in that November area is do it then. So you can get down to the ground, it's cold, but it's better to do it when the grounds frozen. So if you're have a day where there's not a lot of snow, the grounds frozen, that's the best time to do it. And you want to get them close as possible to the crown. If you do a heading cut on a sucker, you're going to end up with a bush. So the closer you can get it, the better. And if there's a bush around your tree, that's a whole lot of other problems. So they're not just ugly, they're actually a problem for carbon distribution for your apples. So my suggestion is to take them off earlier, whenever there's no snow, or make that the last thing you take off. Sometimes what I'll do is if it's really snowing, and I didn't get to that tree, I'll cut them I'll do a heading cut just so I can see better into the canopy because sometimes they grew up into the canopy. And then you can have a better idea of like the architecture because it can throw your eyes even like Yeah, I know that's a sucker, but it looks really crowded. You can do that and then come back later and get them but if you forget to come back later and get them you're screwed, because then you're gonna end up with like a bush. So pros and cons.

Brandon Carpenter 28:45
If you're out there listening to this, right now, your best option is to buy a root stock that doesn't sucker, or Yeah, less prone to soccer. And

Suzanne Slack 28:55
so we have a fruit specialist group and we were literally just talking about that was trying to make people buy low sucker root stocks. The newer ones especially don't sucker as badly as the old ones. But if the root stock super unhappy in a place or if it's super happy in a location
Brandon Carpenter 29:25
So what is your thought on a burndown herbicide in the summertime to deal with suckers? I know we've used paraquat in the past we haven't recently but well for high

Suzanne Slack 29:37
density trees for those who are looking into this and they're like looking at reasons why not to do high density you might have seen something called Rapid Apple decline or sudden Apple decline. And what Cornell University is currently saying is that that burndown for the suckers in high density is what's causing this rapid Apple decline. Especially with glyphosate and other herbicides. I say that with like But like five Asterix in it because someone else was saying it was a virus someone else was saying it was Fireblight someone else was saying it was ambrosia beetles. So we still don't know what caused it, but it is a contender. So I wouldn't discount it. So I would say if you could spare the labor to cut suckers, if you really feel like you have to in the summer, like there's a danger or hazard, do it. But again, if you're creating a wound so close to the ground, summer is just not the right time to take care of them. If you're a plant pathologist, the horticulturalists who are listening to this are like, she doesn't know what she's talking about. You can go out there and do it. Meanwhile, I'm thinking about the kangaroos. I've seen all the awful things I've seen happen to suckers that were pruned in summer conditions. And then they called the pathologist out after they talked to the horticulturalist right.

Brandon Carpenter 30:44
I actually agree with you 100%. As a horticulturalist, I think they should be cut out in the wintertime. And you know, what we try to do here is we'll go through improving the trees, and then the suckers if you do it, the whole orchard at a time, it only takes a few hours, you know, for students to walk through and cut those down to the ground. So then as soon as the snow melts, if we've got time between that and great pruning, we'll go out and do it right then we've done it in the past right after great pruning. And to me that's you've already got SAP flowing, you know, you're a lot more likely to start getting those soil borne diseases or fungal pathogens. And so I my preference would be to do it as soon as the snow melts, but you're still cold and the grounds frozen. And you know, I'd never thought about doing it, like you said in First of the winter before the snow flies. Maybe we'll try to do that in the future.

Suzanne Slack 31:34
Because typically, you won't have any of that splashing precipitation, like we do get some rain in December, but like the main issue is trying to avoid that slashing precipitation. So snow is not a splashing precipitation. Also, if you have those cuts and it's nicely insulated by the snow,
it's probably a better for them to this depends on the winter we get right like this one. It would be a good one to do winter pruning early last winter, not so much. That was pruning. We'll talk about pruning for a couple of other different crops, and we'll see you next time.

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