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 interview Ajay Nair, assistant professor of horticulture and vegetable specialist for Iowa State University Extension and outreach. And we're talking about fall cleanup chores after a season of horticulture crops. I'm Christa Hartsook, small farms program coordinator, and we hope you enjoy the show. As a welcome. Thanks for being back.

Thank you very much, Christa. And I'm very happy that you made me a little bit more younger, because I'm an Associate Professor now.

Well, that's good. That's exciting!

It's good, I feel more younger.

Alright, so Ajay, we've obviously ended our season of vegetable crop production, but the work doesn't end. So what kind of chores do we need to be doing in the fall to prepare for next year?
Dr. Ajay Nair  

So I hope everybody had a great season, this year, there was a significant amount of pest pressure higher with, you know, squash bugs and cucumber beetles. But still, overall, I think the season was really good. You know, talking with growers around the state, everybody was very happy. And this is the time when, you know, we are wrapping up, you know, some of the carrots are still out in the field for some growers. And they are quickly you know, getting those carrots out. Even brussel sprouts, there are some growers who have that out. But again, this is the time when sometimes we are rushed, because we need to harvest. And in that rush, you might forget few things here and there. So I think this is a good opportunity to bring those things into the light of okay, what are certain things you need to absolutely, make sure you do. So, the first thing which I would highly recommend, is if you did not have a plot plan, when you started the season, this is a good time to go and recreate it so that you know where and which side or plot you planted what. So just have an assessment go out there and see, okay, I planted my tomatoes in this field 'A' my potato was in field 'B', and come back and just create that plan or just write it down somewhere in an Excel sheet maybe. And so that's one thing, because once you pull everything you til and then you don't know where did I plant my tomato, my eggplant, so I would highly recommend doing that. There are other chores too, you know, and I think as we go down the discussion, we will talk about more but certainly recreate your plot plan. If you have not done it, make sure you harvest and don't leave much of the residue and debris out in the field. Because you are allowing the pathogens and the insects to overwinter and cause problems for you next year. So cleanup, whatever you cleaning up in a good way.

Christa Hartsook  

Sure, absolutely. Ajay, I know we've got some people out there that are maybe growing on a little bit more of a commercial scale, or maybe they're just wanting to cut down on their weeding themselves. So they were using that plastic mulch and drip irrigation. Can we reuse that for next year and save that.

Dr. Ajay Nair  

Depending on what kind of drip tape you use, you can reuse that. Usually growers use the disposable type which is an eight mil drip tape that is usually just pulled out and thrown out. Because at this point, you know because of the weather insects chewing into it, you know it's difficult to reuse it again it cannot be laid down in an efficient manner surely, especially if you're using a plastic mulch layer to put it down. But some thicker ones like the 10 mil or 15 mil thickness drip tapes can be easily reused. Okay, some growers also have soaker hoses, you know those are again they can be used multiple times. So certainly they should be pulled inside and stored in a in a proper way in a proper place. Because if you keep it outside, then the fluctuation of the temperature the sunlight will start breaking down the plastic. So the shelf life of that product is reduced. So plastic mulch again that can that usually is disposed of. But by this time it's all torn. Weed fabric. Yes, certainly you have to roll it and pull it back. I'm seeing many growers who smaller acreage now using the weed fabric which is more thicker than a plastic mulch, black plastic mulch. It's more expensive than weed fabric. But it has a longer life shirt six years, eight years if properly stored. So if you're using a weed fabric, hose it down, maybe with a 10% bleach because that way any pathogen or any microbe is taken care of and dry it and then roll it and just store it in a cool place. And next year when the season comes.
You roll it out. There's no soil debris on it. There is no pest or pathogen that overwintered on it. It's clean. With plastic mulch, pull all the plastic mulch out and put it in a dumpster or throw it out. Unfortunately, it goes to the landfill.

Christa Hartsook 05:07
Sure, sure. So Ajay we talked a little bit about clearing those beds all out is that all compostable material, then?

Dr. Ajay Nair 05:15
The black plastic mulch is not with the plastic material. But for example, the plant material, like you have harvested your tomatoes and peppers, or your brussel sprouts, or broccoli, and the plant is still there. If there was no, let's say, no major disease. And if you have the capability to till this into the ground, go ahead and do that. Because that way, you're adding organic matter, don't need to haul stuff and dump it somewhere. Why not just add the organic matter in the site. But let's say in case of tomato, you had early blight, or you had septoria. And it was pretty bad in the season, then it might be useful to haul that material outside and dump it out. Because again, the issue of the pathogen, if you keep it in the field, yes, the winter does take care of the pathogen to a certain extent, but some might overwinter and then be active next year. So if there was a disease, I would rather prefer pulling the plants outside. But let's say you are torn between, I think I should have had this organic matter and not pull it out. Or you can go ahead and do that. But make sure you tell it well. Okay, so that the debris into the ground and mixed well. And nothing's left on the top of

Christa Hartsook 06:24
You bet. I know Ajay, while people are doing their fall chores, a lot of people are cleaning out their livestock pens, is now an okay, time to maybe apply that manure and that bedding material to our gardens. Or should we keep that in a separate area.

Dr. Ajay Nair 06:38
I think it's a good idea. Although we also mentioned that we don't want to mix the live the active manure with the vegetable production process in general because of food safety constraints. But if you're doing it in the fall, and you're going to grow the vegetable only next spring or next summer, you have enough time for the breakdown of that manure or what the residue that's coming out of these bonds, it would be good if you can lightly till it in or you know mix it in the soil so that they break down is more faster. There could be some leaching issues and from the field with the rain and snow. But if you have that residue coming out of the barn, rather than piling it somewhere, if you can, if you have the capability, I would spread it and just lightly till it even just makes it in the soil, so that you are you know the soil gets organic matter. It helps the microbes in the soil. So it's good for the soil when you add that organic matter there.
Okay, perfect.

I would like to add one more thing, Christa, you asked about things that need to be cleaned up in the field. Tomato growers use stakes to stake their tomatoes, those stakes can be pulled out and stored, I would recommend making sure you dip those stakes in 10% bleach, because again, the issue of pathogens carrying over. We think of pathogens in the soil and the plant debris. But we forget often forget that the stakes are in contact with the plant throughout the growing season and the stakes are wooden stakes. So there are no creeks in there and crevices where these pathogens can go and overwinter. So pull all those stakes out of wooden stakes out or even iron metal stakes, and then just dip it in a 10% bleach. And that way you are sure that okay, there's no pathogen and store them for the next year.

Yeah, great point to add. Ajay, is it too early to do soil sampling so that we know what we might need to add for next year?

Soil is a critical component when it comes to production system that is the sole foundation for a system to for a production system to be sustainable for years to come. So we have to take care of the soil really well. You know, we always talk about feeding the soil, and the soil will feed the plant. That's pretty very much true. So in terms of keeping or monitoring the health of the soil, soil testing is number one, and it's not too late, the ground has not frozen yet, it is cold, you might have to have multiple layers of jackets to go out into soil sampling. But if you can, this is a good time. Because the way you take sample is you don't, you know if it's let's say you have an acre plot, I would just make think of it as a block a square or rectangle and walk in a W fashion in there, right. So take a soil sample at one end of the w the other end, middle down opposite like a W so you have four or six samples, you put it in a bucket, you mix it all together, and then you take one sample out of it, that's your composite sample. So basically, It's taking six soil samples to make one, and you can send it to the soil testing lab. The advantage of taking samples right now and getting the analysis done. Number one, you have the analysis in your hand, rather than in the spring when it's coming time to planting and thinking of how much of NP or K you need to apply and then collecting the soil sample and sending to the lab when the soil when the lab is very busy. It's to do it right now, and have the soil test in hand. That's one. Number two, let's say if your soil needed some mitigation in terms of adding elemental sulfur, if your soil pH was very high, or adding lime, if your soil pH was low, you still have that window. We don't have much of a time left, but you still have where you can work these things in the ground. And within the case of elemental sulfur, it takes about six to eight months for the elemental sulfur to show effect, and reduce the pH. So let's say if you did the soil sampling in spring, in April, you found that your soil pH was 8.5, which is a little bit farther in from the range, you have to break into 6.5. So the so we recommend applying elemental sulfur, but that elemental sulfur is not going to help you.
Christa Hartsook 10:46
Right. It's too late.

Dr. Ajay Nair 10:47
It's too late. So you have to apply it in the fall, so that you have the six, eight months until you start growing. With lime, it's a little bit more forgiving, you add lime and you start seeing changes. But still, it is advice that if lime was needed, you better apply in the fall so that the soil microbes in the soil has a lot of time to work with the compounds and buffer it well and the pH starts coming down. That's another advantage of doing the soil analysis and mitigating it right now.

Christa Hartsook 11:15
You bet. So Ajay, let's say we do do our soil analysis right now we go out and we're going to take samples even this afternoon, okay. And get that in there. What specifically should we be looking for on that test?

Dr. Ajay Nair 11:27
Yeah, when we send the soil sample in either to the ISU soil testing lab or any of the private companies or vendors, there is a basic or standard soil test which looks at soil organic matter, which reports that the concentration of phosphorus, potassium, calcium, magnesium, some of the micronutrients, for example, iron and zinc, the cation exchange capacity of the soil. So those things are all standard. And they help you to come up with a good decision making tool of okay, what is needed, you notice that I did not mention nitrogen. Most of the soil testing labs do not measure nitrogen, but they do give soil organic matter. And the recommendation for nitrogen is given based on the soil organic matter. So if your organic matter is 3%, you have a certain grade, if it's less than three person, there is another rate and depending on different crops, and we help growers to give those provide those recommendations, the other PNK recommendations, that is based on the available so let's say you did the soil test now, this fall, and then they come back with a P level of let's say 50 parts per million. So 50 parts per million for most of the vegetable crops is above the, it's a higher limit. So next season, you don't have to apply the P, let's say K, potassium comes at 400 parts per million. It's way above the limit of 250, which is a higher level. So you don't have to apply potassium. But if it's low, then you don't have to to apply it now you can apply it in the in the spring. But then because you did the soil test in the fall, you were ready with that in the spring, you already bought the bags of you know 00 50 or 00 60 for potassium or DAP or map for phosphorus. So it gives you enough time and the peace of mind that oh, I'm ready. When the soil is ready to be tilled. I can apply this fertilizer and till it and start growing my vegetables.

Christa Hartsook 13:19
That sounds great. Alright, so obviously we still would have a little bit of time here you have this file to add amendments if our soil test showed that
this file to add amendments if our soil test showed that

Dr. Ajay Nair 13:27
Yes, we do. And again, as long as the soil is workable, you should go ahead and do that, especially with elements of sulfur need to be applied. And when you apply sulfur you need to make sure you tell it six to eight inches deep so that the microbes can work on that sulfur. Iowa State University the agronomy department has a great website called the mesonet M-E-S-O-N-E-T and if you go to that web page, it gives it monitors temperature, soil moisture, relative humidity, air temperature at different stations, weather stations across Iowa. So you can look at a weather station that's close to you and kind of know okay, what is actually soil moisture right now? What is the you know, the ambient air temperature? What is the relative humidity so that also can help you to go out and yeah, I think soil temperature is still in let’s say 45 degree, or 50 degree. Oh, yeah, that’s good. I should go ahead and it I can work it I can add things in it so that the microbes can start working on it.

Christa Hartsook 14:28
Okay, perfect. Ajay, you and I covered in a previous podcast you know, talking about cover crops for specifically for vegetable crop farmers. Are we too late to do anything yet this year?

Dr. Ajay Nair 14:41
The options have slowly narrowed down since we are kind of close to Thanksgiving now. But seeded rye is still you know, an option. Because with seeded rye for the seed to germinate as long as the soil temperatures above 38 degree Fahrenheit which most of parts of Iowa are higher than 30 degree Fahrenheit. And soil is still workable. We can, we can go and seed the seeded rye. Again, rye might not grow a lot, but still it establishes and in the spring it starts growing and before planting, you can till it under or kill it with the herbicide, it could provide some kind of ground cover, and again, to help the microbes in the soil with exudates. And the microbes are also happy. So soil is healthy. When it when there is a cover crop. They, you know, other than seeded rye at this point of time, I don't see many crops that will overwinter in a healthy way. So the choices are limited. If there was a little if you were talking about October, we still had some options. No hairy vetch could have been mixed with the seeded rye and planted, but at this time, only have only seeded rye.

Christa Hartsook 15:54
Alright, that works. Ajay, I would imagine a lot of people get pretty excited like I do when the seed catalogs start coming in the mail. Is it a good time to start planning for next year?

Dr. Ajay Nair 16:05
I think this is a very exciting time, because you see these seed catalogs and you like oh, yeah, I need to start thinking of what I’m going to grow next, the new cultivars that come out. And they will description about those in this in those seed catalogs. So absolutely, this is a good time to
revisit, first thing is to revisit what you planted? Which cultivar? Which variety perform better? What were some of the challenges, and then reassess, okay, am I going to grow that again or not? I'm going to try something smaller pumpkin than what I grew based on the market demands a different type of tomato, or colored pepper red or maybe yellow. So this is a good time, because these catalogs are coming. And most of these seed companies provide early bird discounts. If you order by Jan 10th, or Jan first, so you get discount. So you can you know, that's a good, good incentive. And oftentimes, if you wait or delay for a longer time in the spring, the cultivar, which you want is out of stock. Or you would still get it, but not have high, very high quality because the good ones are already gone. So so this is a good time to revisit those seed catalogs and assess what you had an order.

Christa Hartsook 17:19
Okay, perfect. Let's say Ajay, you know, I've kind of experimented over the years with my vegetable crop production. And I'm thinking I would like to grow on a little bit bigger commercial scale, and I'm thinking about a high tunnel. What do I need to be doing over the winter here to prepare for that?

Dr. Ajay Nair 17:36
Yeah. So if you are not familiar with high tunnel high tunnels are passively heated structures. Like it's like a greenhouse, but it's there's no heat in there. It is covered by a six mil polyethylene plastic. And when you drive around Iowa, you will see more and more of those popping up. And a lot of credit goes to NRCS, the USDA NRCS Eqip program, it's called the Environmental Quality Incentive Program, which has provided a lot of cost share money to growers, who are interested in high tunnels. And when I say cost share, I was at a conference recently met with the grower and the grower said that the NRCS Eqip brand covered 90% of the cost of the high tunnel. So if a high tunnel ranges anywhere from 6000 to $8,000 90%, is paid by the USDA NRCS program.

Christa Hartsook 18:22
That's great!

Dr. Ajay Nair 18:23
So that's a great incentive to buy into this program. There are certain requirements to qualify for that. And that is why it's important to start looking into that. The next deadline, it's a rolling application, you can apply at any time, but the deadline is March of 2018. So you can keep submitting applications and March 18. It closes and they evaluate your application based on the requirements. Where is the highest level goal to go, what are you going to grow in it? Where are you going to sell you need to have a plan. So it's not difficult. It's fairly simple and straightforward. So start looking into high tunnels and applying for those Eqip grants. There is money available, which the USDA NRCS program is providing to growers. I have seen many young growers in my class, the vegetable production class, which I teach these, these students, they go back, and then Mom and Dad already have land. And so land access is not an issue. So
they might ask for a small area where they want to put a high tunnel, they start the vegetable production enterprise with that high town. And it's easily manageable, less diseases because of this plastic structure. And they get a good feel of oh, I can grow many vegetables and then they can expand either in more high tunnels or more field production. So if you're interested to venture into the high tunnel, I would highly recommend you start reading about it and apply go to your local NRCS office, inquire them what the requirements are and then get in and join the bandwagon. I think the high tunnels are a great way to diversify the production system at your farm. I know a lot of corn and soybean growers who are primarily corn and soybean growers, but they do have one or two high tunnels, to grow vegetables and sell at a farmers market or wholesale. Again, it's diversifying their income gets good insurance net for them. And again, you know, the community is willing to buy this. There's a lot of demand for local produce, and the high tunnels are making a good, you know, they're helping growers to grow more high quality produce and sell in the local markets.

Christa Hartsook 20:26
Okay, great. Ajay, is there anything else that we really need to think about here yet, this fall?

Dr. Ajay Nair 20:32
I think we covered most of the things you know, ordering seeds, and especially for seeds, like potatoes, you need to order and garlic and all this, they need advance orders. So and they should be disease free certified seeds. So make sure the seeds which you buy are all certified. I know a lot of growers are slowly getting into sweet potatoes, and sweet potato slips and all need to be ordered now. And if you because most of the producers of these slips are in North Carolina, Louisiana, and so they need orders quickly, so that they can ship it by the end of May. So for those crops, you need to be proactive. And if you can, if you have not done that, just start an Excel file, in which you list all the vegetables you grew this year, in one column, put the year 2017 Put the field name or the number or the site and then just maintain that. So that's a great way of managing an Excel file that will help you automatically develop crop rotation plan. Because you know 2017 I planted this in field 'A' 2018 I'm going to plan this 2019 So just maintain a simple Excel file to know what crop which variety, how much to order. And if you are enthusiastic of you know getting into the production right with that Excel, put the spacing in there, this is the spacing I'm going to use, will it be on plastic or not. And that way when you add the end when you add things, you know how much plastic you need to order how many transplants you need to grow and order. So that Excel file is a good start to penciling down inputs and resources you need for the coming season. So start that Excel file right now.

Christa Hartsook 22:09
Great planning tool.

Dr. Ajay Nair 22:10
That's true.
Christa Hartsook  22:13
Ajay, thanks so much for being on the show today. We appreciate it.

Dr. Ajay Nair  22:16
Thank you very much, Christa for having me over. I think with vegetable acreage, increasing enthusiasm for local foods and the interest in people to eat fresh and local is definitely beneficial vegetables are good for you. And so to all the growers out there, keep growing those excellent high quality vegetables.

Christa Hartsook  22:36
Sounds good. Thank you. Thank you