

Transplants

📅 Thu, 6/10 12:30PM ⌚ 15:06

SUMMARY KEYWORDS

plants, greenhouse, seeds, starting, joe, soil, week, transplants, water, furnaces, people, grow, building, southern iowa, media, pull, seedless watermelon, dry, peppers, nice

SPEAKERS

Christa Hartsook, Joe Hannan

-
- C** Christa Hartsook 00:15
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 interviewed Joe Hannon, Iowa State University Extension and Outreach Horticulture Specialist, and we're talking about starting seeds and transplants for the coming year. Joe, welcome to the show, thanks for being on.
- J** Joe Hannan 00:42
Yeah, good to see you, Christa. I guess it's that time of year to start talking about transplant production.
- C** Christa Hartsook 00:47
It is you know, we've had a little bit of warmer temps here, it's getting people excited for spring, we need to start thinking about starting these seeds in these transplants inside.
- J** Joe Hannan 00:57
Yeah, I have a lot of people already telling me mid-February that they were doing all their double checks and triple checks and quadruple checks on their greenhouses to make sure

everything was up and rolling and ready to roll for the first of March. I think a lot of plants are getting put in the ground this week.

C Christa Hartsook 01:12

That's awesome. So Joe, what are some kind of initial concerns we need to think about when we think about starting transplants inside?

J Joe Hannan 01:20

Well, my general always number one rule or thing that I try to make sure I drive home is making sure you're getting a lot of ventilation through your building, or your grow room — if you're using a grow room — and getting enough air to actually flow across those plants. The more air you can flow across those plants, the faster the soil media will dry out. But it also allows the plants or forces the plants to pull in more water as its evaporating or transpiring from from the leaves, which in turn pulls in more nutrients, so helps to plant a little bit faster. But really, the bigger focus I'd say although, is to make sure that the soil is drying out not sitting there being sopping wet for days on end.

C Christa Hartsook 02:03

Okay. Joe, if we kind of back up a little bit, and attack specific plants themselves, specific crops, are there some that we need to think about starting sooner versus others?

J Joe Hannan 02:14

Yeah, if you're going to be putting anything in the high tunnel that probably needs to be started now.

C Christa Hartsook 02:19

Okay.

J Joe Hannan 02:19

Pretty much now or a week ago, for anything that's going to be outside. Really, our peppers tend to be really slow growing, you know, they can take upwards of six weeks to really get sized up to a point where you take them outside. So again, we're looking at really within the next couple of weeks probably getting those up and going, same with seedless watermelon that can be a little bit tricky to get started get going. So I'd be

starting them. But main season outdoor tomatoes, and cucumbers, melons have a couple of weeks yet before they need to get rolling.



Christa Hartsook 02:53

Okay. So Joe, we talked a little bit about you know, the different soil and not over watering that soil, how do we really kind of prime those seeds and give them the best starting point?



Joe Hannan 03:04

Well, you got two things here, one, so for looking at the soil, let it dry out, you shouldn't really start to see the color of the soil change from a really dark black and start to go more towards like a brownish color.



Christa Hartsook 03:20

Okay.



Joe Hannan 03:21

You'll see that on the soil surface. But you also want to make sure you're looking inside that cell plug and making sure the cell plug itself is actually drying down. So you don't want to get the plant to wilting point, but you want to get it somewhat close to wilting point before you irrigate. And then when you irrigate, it's not just a quick once over with water, it's really making sure you're fully re-saturating, rehydrating that soil plug. Otherwise what happens is you get people that are the tops of the soil plugs dry out, so they're going back in and watering and that's watering too soon, or they're letting it dry out like they're supposed to, but then they water it and it only gets that upper layer of soil plug wet.



Christa Hartsook 04:04

Sure,



Joe Hannan 04:04

So, it's really making sure that you're allowing the full foil plug to really start drying down and then fully rehydrating it. So as I always say reduce the frequency at which you water.

- C** Christa Hartsook 04:15
Sure, sure that makes sense.
- J** Joe Hannan 04:17
If you're seeing like shore flies or fungus gnats your plants are too wet.
- C** Christa Hartsook 04:22
Okay,
- J** Joe Hannan 04:23
You need to change up your watering system in some way shape or form.
- C** Christa Hartsook 04:27
Sure, sure. And Joe that watering system in and of itself I'm assuming you know even cold water could be a shock to nutrients plants.
- J** Joe Hannan 04:36
Yeah, especially when you're starting new seeds cold water will shock the seeds from from germinating. Things like melons not cucumbers not so susceptible to it but peppers and seedless watermelon are extremely susceptible to that cold water. Maybe even to some extent like tomatoes would be susceptible.
- C** Christa Hartsook 04:54
Okay, okay.
- J** Joe Hannan 04:55
So I always say warm up the water before, especially for peppers and seedless watermelon, warm up the water out and put it on a heat bench or pull it out of the hot water heater or something so that it's going to be really that 99 to 100 degrees at same temperature that the soil is.

C Christa Hartsook 05:14
And any kind of concerns, Joe, when we're talking, you know, rural water, or maybe I'm adjacent to a small town, and I'm on city water.

J Joe Hannan 05:22
Yeah, that's something I've probably learned the hard way after starting playing around with hydroponic systems. If you're on a rural water, city water, make sure you've got a carbon filter to pull out any chlorine.

C Christa Hartsook 05:34
Okay,

J Joe Hannan 05:35
Get that out of there. So it'll stunt your plants.

C Christa Hartsook 05:38
Sure.

J Joe Hannan 05:39
And then, you know, a lot of people have a water or a water softener. If you're starting plants in your basement and a grow room or something like that, you've got a water softener hooked up to your home system, try to pull the water from prior to going into that water softener.

C Christa Hartsook 05:54
Okay.

J Joe Hannan 05:55
Again, you'll cause stunting on the plants make it hard for them to grow.

C Christa Hartsook 05:59

Yep. So let's go back to finding those seeds, Joe, like we talked about, what do we need to think of there?

J Joe Hannan 06:05

Yeah, so peppers and watermelon, they're, they're a pain, let's be honest, they're, they're a pain to get started. Now I always got lots of questions on how to get those rolling. So really, we look at trying to prime them, which means taking the seeds and putting them in a wet saturated paper towel and then putting that paper towel into a little plastic container that's sealed or mostly sealed up, putting them on a heat venture in some other very warm area, that's going to hold that about 90 degrees for 24 to 48 hours, really looking for just that radical to start emerging.

C Christa Hartsook 06:42

Okay,

J Joe Hannan 06:42

And then taking those seeds back and planting them into the soil then after that,

C Christa Hartsook 06:46

Okay,

J Joe Hannan 06:47

You'll have a lot more uniform germination when you prime the seeds that way, at least for the watermelon and peppers anyway. Otherwise, you try to germinate them on a heat bench, you'll get really uneven germination. And you'll have some plants that need to come off the heat bench and some plants that haven't germinated yet, so it just makes things a little bit more uniform.

C Christa Hartsook 07:10

Yeah, makes it a little bit easier for the operator to I would imagine

J Joe Hannan 07:15

Yeah, it adds an extra step. But, you know, if you're getting 90 95% germination versus 50 to 75% germination, it's definitely worth it what the seed costs these days.

C Christa Hartsook 07:26

Absolutely. So Joe, we've got that radical route, you know, emergence, and we're ready to plant, what do we kind of need to think about in terms of a mix, or really that growing medium initially?

J Joe Hannan 07:39

I always like something that is going to be really well drained. Especially for the larger tight seed, something that has some larger particles in it tend to see something with a little bit of like, wood chips, or wood chunks, often are in those types of medium mixes. And they just drain and dry out a little bit better. And thus it's you're less likely to be over watering. So if you're trying to germinate a really small seed like lettuce, then I'd want a nice fine grated soil media. But for most of our crops, I like something that's better drained, I am starting to see some new media come out that have wood fibers in them. So some of our suppliers or manufacturers that are coming in out of Canada have wooden fibers in their soil media. And they say it's not needed to provide any more nitrogen to the plants if you're using those media. I would be watching the plants very carefully.

C Christa Hartsook 08:33

Sure, sure,

J Joe Hannan 08:34

Just in case you do so especially for any plants that you're going to have for more than three or four weeks. If you're going to be growing like again, peppers, are going to be in the greenhouse for six weeks. Week Three or week four, I'd be looking at putting some supplemental nitrogen on.

C Christa Hartsook 08:50

Okay. So, Joe, should we be mimicking kind of that day night cycle and really allowing those plants almost a hardening off exposure to the temps we're seeing outside right now?

J Joe Hannan 09:04
Probably not to the temps right now.

C Christa Hartsook 09:06
Yeah.

J Joe Hannan 09:06
With it being almost 50s and 60s.

C Christa Hartsook 09:10
Yeah.

J Joe Hannan 09:11
But yeah, so if you're, if you're in a greenhouse, a lot of our greenhouses don't have lights, so they're running just whatever the day night cycle is, we do see more and more people putting in LED lighting in their greenhouses or in their grow rooms and running those lights for 16 hours on and eight hours off. We're getting to the point in the year where they wouldn't necessarily need to be using those.

C Christa Hartsook 09:35
Sure.

J Joe Hannan 09:35
They're more beneficial in that January, February timeframe.

C Christa Hartsook 09:38
Yep, that makes sense.

J Joe Hannan 09:39
But yeah, so as far as getting the plants to harden off, yeah, as you're growing the plants really, a lot of people say hardening off is a thing you do the week before you put the

plants in the field. I very much disagree. I really think hardening off is just growing the plants in a good, healthy manner. That means getting lots of airflow over the plants so that the cuticle develops nice and thick on the leaves, not over watering the plants. As you're moving more and more towards getting to that stage, where you're going to transplant them outside, then maybe actually start taking them outside and putting them on a wagon or putting them somewhere where rabbits and things aren't going to get them just so that they really get used to the full sunlight that we have and the full wind that we get in Iowa. And unfortunately I have learned that one the hard way too. So yeah. Which actually brings me to a good point, if you're buying plants that aren't necessarily, that are being grown a significant distance from where you're planting them. Like, you know, you're buying plants in Northern Ireland, planning in southern Iowa, really critical there to make sure that you slowly start introducing them to the current conditions at your fields more so than if you're just growing them locally.

C Christa Hartsook 10:55
Okay,

J Joe Hannan 10:55
You can get a lot of sunburn and wind damage, you know, because it could be very cloudy for weeks on end up north and in southern Iowa, not so much.

C Christa Hartsook 11:04
Not as much. Sure that makes sense. Joe, let's talk a little bit about some of those other kind of common issues that we see. We talked a little bit about the overwatering and, you know, if you're seeing some of those flies or fungus gnats, you know, obviously, you're probably over watering. What other kinds of common problems can we face?

J Joe Hannan 11:23
Ah, we often face people's furnaces breaking at night and freezing out the plants, you know, I think at this stage for how cheap it is, it's a good idea to get a temperature alarm and put it out in the greenhouse or put it out in the grow room. Really both to tell you if plants get too cold or if it gets too hot out there.

C Christa Hartsook 11:41
Sure.



Joe Hannan 11:42

A good Wi Fi connected temperature alarm should be less than \$100.



Christa Hartsook 11:47

Okay,



Joe Hannan 11:47

So when you start looking at your seed cost and your heating cost, that's, that's pretty cheap.



Christa Hartsook 11:52

Yeah, that's a good insurance investment.



Joe Hannan 11:55

Yeah, and you can get ones that are Wi Fi connected to your phone, you can get ones that just send an alarm, ones that have a visual signal. Honestly, I'm not going to see or hear something at night from the greenhouse, so I prefer something connected to my phone. And frankly, if you're listening to a podcast, you probably do too.



Christa Hartsook 12:12

Yeah, exactly.



Joe Hannan 12:13

So get an alarm for your greenhouse. We also tend to see at least a couple times a year in the springtime, we'll find where greenhouses that have been entirely closed up really tight for several days or a week. You know, it's nice out today. It was nice out yesterday and tomorrow, but we still get those periods and we're likely to get those periods where it might be cooled damp and wet for a week, ten days, and the greenhouse would be closed up and we'll be running the furnace constantly.



Christa Hartsook 12:41

Yep.

J Joe Hannan 12:42
Well, if you're not cycling enough fresh air into that greenhouse, or if that greenhouse is, venting the exhaust gas next to the intake for the greenhouse, you can get a buildup of ethylene inside the building.

C Christa Hartsook 12:54
Okay,

J Joe Hannan 12:55
And that causes curling and epinastic growth, so it really looks like 240 damage.

C Christa Hartsook 13:00
Okay,

J Joe Hannan 13:00
And that's often we'll see that damage closest to where the furnaces but you know, if you get that on something like a tomato, depending on how bad it is, you're almost better off just starting with new plants. Which you know, if you've got two or three week old mango plants at that point, kind of sets you back pretty far.

C Christa Hartsook 13:20
It does. It makes a big difference.

J Joe Hannan 13:22
Yeah, so the take home message there is make sure the ventilation on your furnaces up and away from any intakes into your building. And don't seal up your buildings super tight, especially if it's going to be cold for several days, you still have to get some fresh air into the building.

C Christa Hartsook 13:39
And are fans enough Joe to really kind of circulate that air, or are you still circulating kind of bad air could still do the same damage if you're not really recycling in and out?

- J** Joe Hannan 13:51
Yeah, so the fans just in the building, they're gonna do a nice job circling the air and keeping the heat distributed. But you have to bring in fresh air from outside. You need to change over your air over time.
- C** Christa Hartsook 14:05
Absolutely. Joe, anything else that we really need to talk about today?
- J** Joe Hannan 14:09
No, I think that covers, you know, kind of my main points. I wanted to drive home today with starting transplants.
- C** Christa Hartsook 14:14
Okay, awesome. Well, we hope that everyone has really good experience then off of information from here.
- J** Joe Hannan 14:21
Yeah, hopefully everybody's as anxious as I am to get their plants started and get out to the field. And keep in mind we are last frost date still is, you know, early May. So we have a few weeks ago.
- C** Christa Hartsook 14:34
We do. I think everybody's anxious to see some green though. So I understand.
- J** Joe Hannan 14:38
Yeah, I driving around and looking at landscape plants is throwing signs of spring.
- C** Christa Hartsook 14:42
Yeah, that's good to hear. Joe thanks as always for being on.
- J** Joe Hannan 14:46

Yeah, thanks for having me, Christa. I appreciate it.



14:49

This program is brought to you by Iowa State University Extension and Outreach. This institution is an equal opportunity provider for the full non-discrimination statement or accommodation inquires, go to www.extension.iastate.edu/diversity/ext.