

Hot Weather and Hort Crops

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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 visit with Joe Hannan, commercial horticulture field specialist for Iowa State University Extension and Outreach on the effects of the hot weather on horticulture crops around the state of Iowa. I'm Christa Hartsook, small farms program coordinator. And we hope you enjoy the show. Joe welcome. Thanks for being on.

J Joe Hannan 00:54

Hi, Christa. Thanks for having me today. Really happy to be here.

C Christa Hartsook 00:57

Awesome. Joe we've had a stretch of some really hot days. How does that affect in general are horticultural crops?

J Joe Hannan 01:06

Well, Christa when we look at our late season, cool season, or late planted cool season crops, so are lettuces, like the other leafy greens, radishes, all brassicas they're starting to basically kind of burn up. It's getting too hot for them to really grow and produce pretty well. We're also seeing the greens, the bok choy, and things like that. They're either bolting, so they're flowering, they're coming bitter. So basically, you know, any of those cool season crops are going to be done until the fall, when we look at the the warm season crops like tomatoes, the peppers, melons, the sweet corn, the very high temps actually can slow down the growth of these plants. I don't know that there's anything that really slows down tomatoes in a greenhouse or high tunnel, but they the high temps can actually slow them down a little bit. We

can also see if you're have fruit starting to ripen, now that we have warm days warm nights, you actually can get more of a heat ripening. So the fruit is maturing, but it's not getting that good quality flavor components to it. Fortunately, we're seeing more the warm days and the cool night. So the quality side of things has actually still been pretty good. So we're happy on that end.

C Christa Hartsook 02:31

All right. Joe what about you know, in general bloom pollination, you mentioned a little bit about, you know, fruit setting, how's the heat affecting those?

J Joe Hannan 02:40

Well, when we get over 90 to 92 degrees Fahrenheit, it can actually inhibit fruit set with things like tomatoes and beans. So what you might see, come, you know, 30 days down the road after a real hot period is that you may have a lag in harvest for a few days. And that's representative of going back to that bloom period is, you know, the fruit inside at that point. So once we get temperatures, it's cooled down. So the last couple of days and things have been cooled down. So you should see just a small period where fruit didn't set.

C Christa Hartsook 03:20

Joe, obviously, irrigation would be one tool to utilize during some really hot dry spells. But are there important considerations we need to take into account when we're monitoring those type of systems?

J Joe Hannan 03:32

Yeah. Right now, every time the irrigation system runs, you should be out checking it. I'm hearing a lot of people systems are having blowouts or leaks and things that are showing up much earlier in the season than we then when we would expect because they're being taxed pretty hard. Right from the get go. So get out there scout your irrigation system look for leaks in the system look for plugged emitters, look for any components that might be pulling apart if it's clamped or crimped on. We're running a lot more water through the system, which means you need to be out there cleaning the filter a lot more frequently. And then also get out there and actually look at the plants from a nutritional standpoint. If you're on a well water, you know, it's very possible that you could start to see some nutritional issues showing up from you know, typically our walwater be very high in pH. So you can see some micronutrient issues or possibly some calcium, magnesium potassium nutrient type issue. So kind of get out and keep a very close eye for any chlorosis or discoloration in your plants and identify what nutritional issue that could be so we can get on it and fix it before it becomes a big issue.

C Christa Hartsook 04:48

Absolutely. Joe, is there kind of a good rule of thumb or some calculations to know how long and how often we should be watering?

and how often we should be watering?

J Joe Hannan 04:55

Yeah. How often and how long kind of depends on your system, your soil type, whether you're growing in ground or pop culture, whether you're on a sandy soil or whether you're on a heavier type soil, I see individuals out there that will run the irrigation system every day could be if they're growing in pots could be growing tomatoes or cucumbers and a high tunnel could be on a sandy ground that they're running every day. But most of the individuals that are on a heavier loamy type soil, really probably about every three days is where they need to be at for, you know, just a general rule of thumb, a couple things I look at for how often to run it, is to look at, see if you're seeing any wilting on that new vegetative growth on the plant. If you're just getting to that point where you're a little bit stressed, you know, you may need to irrigate, and don't just rely on see and just a little bit of stress showing up on the plant that you need to get it back down and check actually the soil. So look down on the root zone, you know, from that zero inches down to 6-12 inches. And you know, put your hand down into that ground look for moisture, are you are you are you moist, already saturated are you getting dry. Alternatively, you can use things like tensiometers and digital soil moisture meters. They'll actually read and give you an idea of more accurate of just with your hand of how how much moisture is out there. We do have a good a couple of good tools on lowaproduce.org that will actually help you calculate when to irrigate and how much run time you'll need. So there are some tools out there,

C Christa Hartsook 06:42

fabulous, and we'll include some links to those.

J Joe Hannan 06:45

Okay, a couple other points I want to make. With being in this hot weather this early in the season, it's a good idea to make sure you have a backup irrigation system in place or a plan in place, particularly with some of the prolonged periods of warm weather that we've had. And looking down the road, it's likely or very possible that we could continue this pattern throughout the season.

C Christa Hartsook 07:12

Sure, absolutely. Are there other methods then that we can use or you know assist in helping to cool our plants down?

J Joe Hannan 07:21

Yeah, more so in high tunnels and in fields although not impossible, in field within the high tunnels, definitely make sure you have as much airflow going through that high tunnel as possible. That means opening up the end walls, roof vents or endwall vents if you have on the

sidewalls get everything opened up and get as much airflow moving through there. You may not maybe significantly impact temperature much but every little bit can help. We also can put shade cloth on like 35% shade cloth is pretty common. And that will actually help cool the high tunnel again give you anywhere up to you know three to five degrees protection possibly, if you haven't put it on at this point in the year. Good idea to just go ahead and get it on again. As we move into July and August. It looks like it's gonna stay warm. So you put it on now and get the benefit for the full season can also look at having a misting system over your plants to help cool particularly in a high tunnel. That's kind of a high risk system to go with though. If you have cultivars that have or they don't have very good disease package that would be susceptible to leaf mold. Using a mist system might not be a very good idea for you. Because you're going to add a lot of disease pressure and having that mist during the day. One thing I don't recommend though, is going in and adding fans to your high tunnel. Generally they're not able to push or pull the air across the entire high tunnel through the plant canopy. So you're running a lot of fans but you're really not getting a lot of value in that plant canopy. We've looked at airflow moving through from one end of the high tunnel to another and what we found is air just like water just like electricity tends to take the path of least resistance so it will come up and go over the plants and then come back down and out through the end wall. So again, you're you're running a lot of electricity for not a lot of value there.

C Christa Hartsook 09:35

Joe is shade cloth itself effective in field crops.

J Joe Hannan 09:40

Yeah, you could definitely put shade cloth out over field crops . I was out visiting a farm the other day that they actually had, their growing lettuce on white mulch with shade cloth over it and there's lettuce is still in pretty good shape considering the heat that we had. So yes, it is definitely a tool you can use in the field.

C Christa Hartsook 10:01

All right, Joe, you mentioned a little bit that we can start to see some disease, maybe some insect pressures if we're utilizing some of those misting systems. Are there other insects or maybe diseases that we do need to watch for, in hotter, drier spells that we might experience here.

J Joe Hannan 10:20

I'm always on the lookout for aphids and spider mites during this time period.

C Christa Hartsook 10:25

All right, and tools that we might need to combat those.

J Joe Hannan 10:30
The best place to find your tools is in the Midwest vegetable production guide. It's fg600. On the extension publication store, you'll find all the options listed for each of the different crops.

C Christa Hartsook 10:44
Perfect, that's exactly what we need to know.

J Joe Hannan 10:46
Perfect. It's a free publication, very, very informative, so highly recommend it.

C Christa Hartsook 10:53
Joe, anything else that we really need to think about right now.

J Joe Hannan 10:56
Also be on the lookout for your employees. Make sure they're drinking plenty of water, taking breaks, getting in the shade. Be watching for heatstroke, all those, you know, personnel issues as well.

C Christa Hartsook 11:09
That's a very good point. Great reminder to bring up

J Joe Hannan 11:11
indeed.

C Christa Hartsook 11:12
All right. Thanks, Joe, for being on today. We appreciate it.

J Joe Hannan 11:15
Thank you, Christa had a good time, and hopefully I'll talk to you soon.





Christa Hartsook 11:18

Sounds good. Thanks, Joe.