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 Hannon commercial horticulture specialist for Iowa State University Extension and outreach. And we're talking about rainwater catchment. I'm Christa Hartsook. Small farms program coordinator and we hope you enjoy the show. Joe, thanks for being back.

Yeah, Hey Christa, how are you doing today?

I am good. It's a good day to be out and about and talking about this kind of stuff.

That's fantastic. It's good time we're going into winter, it's time to start looking at next year.

Absolutely. So Joe, this was kind of prompted by a course you attended the other day?

Yeah. I was at the Iowa high tunnel short course on Monday and Justin Glisan at our Iowa State
Yeah, I was at the Iowa high tunnel short course on Monday and Justin Glisan at our Iowa State Climatologist at our Department of Ag and land stewardship was talking about climate change and what that means as far as rainfalls in Iowa when we get on when we don't get them, how much we'll get and things like that. And I thought that conversation really played well with an article that I just written for you last month.

Christa Hartsook 01:30
Absolutely. So that article was addressing the challenges of rainwater catchment systems for produce and irrigation systems. And so you kind of want to talk a little bit about the highlights of that article.

Joe Hannan 01:42
Yeah, really, that article was talking about rainwater catchment systems? And how do we keep the water that we're collecting safe for being used on to food crops. And so we're catching rainwater, you know, that's going over the surface of a building or a house or a high tunnel on those surfaces can have dust or debris, they can have bird poop, pathogens in that bird poop and things like that. And that article really focuses on okay, if we're going to collect that water, what do we need to filter do to filter and keep that water clean and safe for use on produce? And then if we're not going to filter it, how and where can we use that water appropriately? So that, you know we don't get our consumers who are eating our produce sick. So you know, best practices on that side of things.

Christa Hartsook 02:34
Absolutely. So Joe, I'm assuming you know that Dr. Glisan, was talking a little bit about some of the different events and things like that we're seeing within our climate and our seasonality here in Iowa.

Joe Hannan 02:47
Yeah. So Dr. Glisan was talking about in the well basically, he's talking about one where or when are we getting rainfall in the in the course of our growing season. So he talked and showed data on the on the fact that we get more rainfall and more events during the spring in the fall. And we get less rainfall during those peak, summer growing season period. So we'll have drier summers and wetter springs. And so we get into a little bit of a challenge there. When we look at rainwater catchment systems, we typically think of a rainwater catchment system of collecting water and you know, by the time the tank is empty again, we're getting water shortly there after refilling those water tanks but what we may be seeing with some of our changes in our in our climate is that at least across your Iowa, is that we may have longer periods of dryness during the heat of summer when we actually really need that water. And so what prompted me to come on and talk to you today a little bit as well he may we need to be thinking about putting bigger water barrels for water collection during the springtime when we get more rain and being able to hold it spread out that water further into our summer growing season.
Christa Hartsook 04:08
Absolutely. You know there were several times within Iowa last spring Joe where we were seeing you know, the three to six to eight inches of rain at a time so the bigger barrels makes sense.

Joe Hannan 04:19
Yeah, you know, it really does make sense we used to think of oh about one inch rainfall is what we get so we sized our tanks off of a one inch rainfall you know, we no need to go any bigger than that because we weren't really going to get any, any more than that. We are starting to see like you just mentioned that we are getting more of those trends where we're getting two inches plus three inches plus and that's not a lot of increase in frequency and how many how many times we're getting that those large rainfalls, but we are starting to see those larger rainfalls, which means we can have larger tanks because they are going to get filled up in the springtime.

Christa Hartsook 05:00
Mmhmm. Now Joe, I would imagine that as we talk about, you know, bigger barrels and longer storage time that there may be some concerns with that as well.

Joe Hannan 05:11
Yeah, so you're gonna need a bigger barrel, you're gonna hold the water longer. And anytime you have sitting stagnant water in a tank or in some sort of capture facility, there is more chance that the likelihood of that water goes bad or something happens to it that makes it not safe for use. So for going to be collecting larger volumes of water, if you're going to be adding tanks to your water catchment system, or replacing tanks or buying just installing a whole new system, it becomes even more important to buy tanks that block sunlight from going into the tank in order to prevent algae growth, then it also becomes even more important to look at having very good filtration systems in order to pull out any algae or any other solids that get into that tank and are sitting there for a while. So the filtration system to pull it out forward without irrigation system, really that that's so that irrigation system doesn't clog up for those nozzles don't clog up. But we also have sitting water there. And if you give, give it enough time, and you have any sort of human pathogen that got washed in from bird poop or anything on the top of your buildings that you're collecting water from those human pathogens can grow within those water tanks. And so having some sort of either UV filter or sanitizer injected into the irrigation system becomes even more important as you're getting bigger and longer, bigger tanks and hold it for a longer time period.

Christa Hartsook 06:40
Sure, absolutely. Joe, if we were to, let's say, be doing a little planning this winter, and you know, trying to determine if we could implement a rainwater catchment system next spring? What would we be looking at ballpark for a cost on something like that?
Joe Hannan  06:56
I it's directly related to what the cost of the tank is going to be sure. I want to say, a 5000 gallon tank you should be able to pick up for under $3,500.

Christa Hartsook  07:11
Okay.

Joe Hannan  07:11
That number might be just off a little bit, but I think that gets you in the rough ballpark. Yeah, so water catchment tank should be like about 5000 gallons should be roughly $3,500 And then a good filtration system plus you'd like a UV sanitizer, that's going to cost you another 1000 to $1,500 Depending on the size of the filters and the UV sanitizer that you get. So I promote prompt the UV sanitizer over like water injection of sanity like running it through your fertilizer injector. Just because UV sanitizers are a lot less maintenance to work with. You know, once you get it wired in and plugged in, so that it turns on when your pump turns on, you really walk away from it, you don't do a lot of work to it other than replace the UV bulb down the road sometime. If you're injecting the sanitizer into the water system in order to keep it clean that way. You've got to be watching and maintaining the injector, you've got to be refilling the sanitizer, bulk tanks, things like that. So there's a lot of additional daily maintenance, its daily or weekly maintenance that's required if you're doing an injection of a product.

Christa Hartsook  08:24
And the overall cost is still significantly less than having to drill for a new well.

Joe Hannan  08:29
Oh, by far yeah. By far cheaper than drilling a new well. You know, I still think rainwater catchment systems a little bit better than say pulling out of a pond or a river simply because you have more control over the water that's going into your rainwater catchment system. I mean, you have the ability to keep trees and birds and things marginally away from your roof of your buildings that you're collecting water from, you know, collect the water from a building that doesn't have tree limbs and things hanging over it versus a pond or a river that you'd be collecting water out of you don't have entire control over that watershed. Yeah, a lot harder to keep birds and deer and mice and rabbits and things out of that water. Rainwater doesn't have a lot of dissolved solid in it like it would if you're drilling a new well or pulling something out of a pond or river.

Christa Hartsook  09:24
Right. And it's at least a good use for some of these events that we're having. You know, you might as well be capturing that water and saving it four times throughout the summer when we need that.

Joe Hannan 09:35
Absolutely rainwater as long as you can handle it in a safe manner is a fantastic water source. Like I said it doesn't have all of the calcium, magnesium and hardness that you get from well water doesn't have a lot of silt and debris that you'd be getting from other surface waters. So you might as well take advantage of an excellent water source.

Christa Hartsook 09:57
Sure makes total sense. Joe, anything else that we need to think about here?

Joe Hannan 10:02
No, I just wanted to kind of really come on and, you know, mentioned that as we're looking at adding, building rainwater catchment systems to consider larger tanks and what we may have been thinking about in the past.

Christa Hartsook 10:14
Absolutely good information and a good way to view some of these climate events that we've been having. So

Joe Hannan 10:21
yeah, you know, it's nice way to take some data and lessons that we're learning from some of this data and start applying it to the real world.

Christa Hartsook 10:28
Sounds good.

Joe Hannan 10:29
Great. Thank you, Christa.

Christa Hartsook 10:30
Alright. thanks for being on Joe.
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