

[MUSIC] Hey, Wyoming. Welcome to the Lawn and Garden podcast with University of Wyoming Extension specialist, Jeff Edwards, and co-host, Jerry Erschabeck. Originally aired on KGOS and KERM in Torrington, join Jeff, Jerry, and all their special guests as they talk all things gardening in the great State of Wyoming, from plant variance to weather event, to pesticides and pollinators. Our Lawn and Garden Garden podcasts helps you improve your home garden as well as your small acreage. Let's welcome Jeff Edwards and Jerry Erschabeck.

Good morning, everybody. This is Jeff Edwards and Jerry Erschabeck for the KGOS KERM Lawn and Garden Program. Our guest today is Katherine Wisner. Hello Katherine, How are you?

Hi everybody. I'm doing great. Thanks for having me on. This will be fun.

Always good to have you with us, Jerry. How are you hanging in there with us today?

Hey, I'm doing really well. Of course, the first thing we have to say something about is the weather. Good gosh, how the weather seems to affect it. We got past Mother's Day [OVERLAPPING] barely and then it started rain a couple of days and starting to finally [OVERLAPPING] warm up a little bit.

Yeah. Unfortunately, we're we're getting a little moisture or have gotten a little moisture this week and hopefully the weekend will straighten out and people can get out in their gardens.

Yeah.

Before we jump into our full-blown program, Let's take few minutes and listen to our sponsors and we'll be back right after this.

[MUSIC] This summer, Wyoming First Lady, Janine Gordons, Wyoming Hunger Initiative, the Sensible Nutrition Program, and the University of Wyoming Extension are partnering to launch a program called Grow a Little Extra. We invite you to join us in growing a little extra to donate fresh produce to local anti-hunger organizations that support our neighbors facing food insecurity. Stop by your local extension office to pick up your free seeds or donate extra from your garden harvest. For more information, visit [www.nohungerwyo.org/grow](http://www.nohungerwyo.org/grow), W-W-W-N-O-H-U-N-G-E-R-W-O.O-R-G/G-R-O-W.

Good morning again, everybody. This is Jeff Edwards and Jerry Erschabeck for the KGOS KERM Lawn and Garden program with our guest today, Katherine Wisner. Katherine is the horticulturist for the University of Wyoming in the Cheyenne office. We're getting a little different perspective today. Katherine, you wanted to talk about myth busting or some common garden mistakes that people make. Let's just dive right into it.

Okay, great. Well, again, in my 18 years of experience working for the extension office in Cheyenne, I have come across all sorts of things, [LAUGHTER].

Haven't we all.

I'd like to help people be successful in the garden. I run into a lot of people that say my garden failed, nothing grew. I say well, how did you amend the soil, what did you fertilize with? Next thing I know they're telling me that they just put ten bags of compost into a 10 by 10 spot and that will make your soil absolutely toxic [OVERLAPPING] and nothing will grow. I want to do some myth busting on amending your soil. This whole myth and ideology that more-is-better is just going down the wrong garden path [LAUGHTER], and this is just going to lead you into a lot of disappointment and heartbreak. Like to set people up for success. I think there's nothing more rewarding than being able to go out into your vegetable and having just this wonderful bounty of tomatoes and peppers, and carrots and green beans, lettuce, potatoes. But I just run into a lot of people who have over loved their soil [LAUGHTER].

That's a good way to put it. That is a very good way to put it.

I'd like to have everybody take a step back from grabbing bags and spending tons of money at the big-box stores on stuff that you don't need. Rule number one in the vegetable garden, get a soil test. Start with a benchmark. Know where you're at with your soil.

Amen. Jerry and I were just talking this morning about a soil sample that we pulled in and had analyzed. You can get a lot of information from a soil test. It tells you exactly the direction that you need to go, whether or not you need to fertilize or if you have some significant problem that you have to address prior to starting your garden.

Exactly, you can't make the assumption that your soil is bad by looking at it. I run into that a lot. Just because the soil maybe the color of a brown paper bag, doesn't mean that it's bad. [LAUGHTER]

Exactly [LAUGHTER]. Or people assume that sandy soils are bad. They might be low in organic matter, true, but they might be very high in nutrients. Personally, my soil is 92 percent sand and I think where I live now, I have the best garden I've ever had in my life. It just all depends on what's there and how you start with it. A soil sample for 19 bucks or around there, you can get some really good information to understand about your garden.

Now, I've always been told the clump test is probably a good indicator of your soil. That's grabbing a handful of your soil and see if it clumps. But isn't that just part of your moisture?

That's part of a Jerry, but it helps you realize what else you have there too. That clump test, grabbing a handful you can tell if it's sandy or you can tell if it has this clay in it, those types of things. [OVERLAPPING]

Also a texturing test. [OVERLAPPING] Jerry, what I do with the Master Gardeners is I have them bring in a sample of their soil. We add a little water in and we work it in

our hands and we make a ribbon out of it or we try. Just that simple test right there will tell you how much clay or sand or loam you've got and what combination. It actually is a really good way to try to figure out what's there: sand, salt, or clay. The other really cool way that I do with my Master Gardeners is I have them all bring a water bottle, clear water bottle. We put soil in there, fill it with water, shake it up really well, let it settle out. As it settles, you can see visually exactly what you've got layer wise and the water portion of it and the top part, depending on how yellow or clear it is tells you how much clay you've got so you can do some home stuff that's very, very cool and very easy to do, but it doesn't tell you what the nitrogen, the phosphorous or potassium is. It won't tell you what the pH is which is incredibly important. Then that altogether mysterious salts that just raise eyebrows for my Master Gardeners is critical. When I get a soil test back, the first two things I look at are the salts and the pH because that's going to tell you right off whether you can grow in that soil or not. Salts are measured in EC or electric conductivity because you can run a current through salt, which is pretty cool. That tells you how much salt is in your soil. That will make or break you right there.

High salt content will prevent plants from taking up moisture, correct?

Absolutely. It causes what's called a physiological drought of the plant.

Even though there's an adequate moisture in the soil, the plant just can't pick it up or bring it into the system.

The symptoms of that are lower yellowing leaves, plant wilts, you water it perks up it will skin more yellow leaves. This goes on for several days and then the plant just finally dies. That's a sign of over salty soil.

It could be sourced through your water too, correct? I mean you could have salty soil to begin with, but if you're on a well or something, your well could have a high EC concentration and then you're adding to the problem.

Absolutely. I've had a couple yard calls here in Laramie County and Cheyenne, where the homeowners had a whole house water softening system and whoever plumbed it for them also plumbed the outside water to that whole house water softening system and so they end up dumping salt on their lawn and their vegetable garden and they just make the problem. Just, I mean, they made their soil toxic.

Sure.

Absolutely interesting. [LAUGHTER] It's hard to just turn that one around.

[LAUGHTER] Well, fix the plumbing first [LAUGHTER].

Yeah.

But the second thing you mentioned Katherine was the pH and pH just, it's a relatively simple concept, but then there's some complexity to it as well. We think, okay, well, why is the soil pH going to affect my plants? Can you explain the scale

and how at the low end it affects things differently than it will have the high-end of the pH?

Sure. Absolutely. We're all going to go back to high school chemistry on this one and pH is a measurement of the hydrogen atoms in the soil or the water or whatever you're measuring. What does that mean? [LAUGHTER] Seven is neutral and I line up my soils here in and I live in Carpenter, Wyoming. My soil's here are right at seven, they're neutral. Lot of soils are in Wyoming and in the West, are alkaline. That means that there are higher pH and so. When you think of things that are alkaline, think of baking soda, which is 8.5. Then you've got all the way to the far end of the scale, which is wood ash, fireplace ash, why? That's all right up there at pegs the meter at 14. The pH scale goes from one to 14. Seven is neutral. The higher the number, the bigger the number, the more alkaline the soil and that's not easy to grow anything in. Your ideal vegetable garden soil is going to be right at seven, seven and a half to and actually vegetables especially want an acidic soil and they're really happy down at six and a half, six. Potatoes like it at five and a half. Blueberries want 4.5. Now we're talking stuff like vinegar and we're talking [LAUGHTER] lemon juice and wine. Those are very acidic things.

Sure.

Yeah.

Hydrangeas.

Say that word again Jerry?

Hydrangeas. Don't do they like to go towards the acidic side?

Hydrangeas.

Hydrangeas. [LAUGHTER] Interesting in the way we all learn something.

That's right. Extra letters.

[LAUGHTER] Yeah. Hydrangeas are hard to grow in, at least in Laramie County. Now you guys are in a banana belt and you can grow a lot of things that we can't hear in Cheyenne. You all can probably grow hydrangeas and we can't. But hydrangeas do like to have a little bit more neutral to acidic soil. Some of them like it at 7.5, 7 or at 6.5. It just depends upon the color cause they are pH sensitive. But so we're going to take a step back from hydrangeas and we'll talk a little bit about blueberries, because [LAUGHTER] the big box stores here in Cheyenne seem to think that we can grow blueberries here and I see blueberries for sale down in Fort Collins. If you want to grow blueberries, here's how you're going to do it. You're going to get yourself a bale of peat moss. You're going to put some drainage holes on the bottom side and then the top side, you'll want to lay it flat. You're going to cut a hole to put the plant in. You're going to put that blueberry plant directly into pure peat moss, which has got a pH around four and a half to five and a half. You're going to put drip irrigation on it or a soaker hose or something and you're going to never, let that veil of peat moss

dry out. That's how you're going to grow blueberries. You could do that in a container. In the winter, you need to bring that blueberry in because they do not like to have the wind blowing on them [LAUGHTER]. Guess what Wyoming specializes in?

A lot of wind.

A lot of wind.

In extension, we always get the question okay, I'd like to grow blue blueberries? Well, you can [NOISE] , can't tell, you won't be able to. But it could be very expensive hobby and you might not like the quality of berries that you get in the end [LAUGHTER].

Yeah. Exactly. In my 18 years working with extension, I have learned to never say never to a master gardener.

Right.

As soon as I do, they're going to raise their hand. [OVERLAPPING]

Well, they comp an attitude to which [LAUGHTER] don't tell me [OVERLAPPING] to do that.

You can't do that. Watch me.

Watch me. Yeah. You can do blueberries, but they've got to be in a container, preferably a plastic container, not the ceramic or clay pots. Because clay pots sucks the moisture out of the soil and you got to bring it in in the winter. Pure peat moss, don't ever let it dry out. It wants to be watered with a little bit of vinegar in that water. Because I guarantee your water from your well is going to be a higher pH and that's going to mess with that blueberry plant. I have had master gardeners tell me they've gotten like a couple chords off their blueberry plant, but they never told me what they tasted like.

So basically blueberries in Wyoming are a pet. You leave them outside in the summer, you bring them inside during the winter. [LAUGHTER]

I've never looked at it that way, but yeah, you're right. They are a plant pet and you need to pamper them.

I guess what we all want to talk to our listeners about is, if you have challenging pH conditions, the higher the pH you go as we mentioned with the electrical conductivity of the water in the soil, the higher the pH that you go. It also makes nutrients unavailable to the plant. Particularly things like iron, nitrogen, manganese. Remember last year, a couple of years ago, Jerry, we kept talking about manganese on the radio. [LAUGHTER]

Yeah.

So all of these things are critical to plant growth and plant survival and it makes it

really challenging to overcome some of those issues.

Around my house, my pH I just happen to know is around 8.2.

Okay.

To reduce that, we've tried to throw sulfur down. But I understand you have to throw sulfur every year in order to try to maintain a lower pH. Is there a better way to lower pH?

No. [OVERLAPPING]

Not really.

We have hard water. We have a well and it's hard water and high nitrates. The nitrates is part of the salts or no?

There's other things other than nitrates that contribute to the salts.

We have hard water which I don't know what the pH is. I want to test that here one of these days. Any advice on lowering that 8.2?

When I teach the Master Gardener Program, this is something we talk about. In only vegetable gardeners are crazy enough to try to alter the pH of a garden. Again, vegetable gardens need a little bit more of an acidic soil. You have to amend it every year because the soil will naturally want to buffer or go back to what it originally was. This is a yearly chase. When you're vegetable gardener, you have a different mindset of gardening. This is where I told my students to let their inner micromanager run a mock because that's what it takes. I tell them to keep records, I teach them how to map out a garden, I keep track of where everything gets planted so they can rotate those vegetables every year. That's something that's really critical on a vegetable garden. Even if you have got little five-by-five, five-by-ten spot, you need to plant something different in that spot every year. You need to rotate it constantly. You're always amending it, but you should be careful with what you're amending with. I'm going to get on my soapbox a little bit here and Solomon mentioned, I can see Jeff smiling there because he knows where this is going. This goes back to setting yourself up for success in a vegetable garden and having a good bounty of produce, and products. The urban myth is more-is-better. This is where you really have to back off, get a soil test, know what is already there from a standpoint of nitrogen, phosphorus, and potassium. Those are the three macro-nutrients. When you buy a bag of fertilizer, there's those three mystery numbers on that bag or box. The first one is always nitrogen. Nitrogen tells a plant to grow and grow a lot. You're talking about nitrates in the water and probably nitrites in the water too, well, there's your source of nitrogen right there. I would encourage you to get a water test so you know how much of that is in the water because that can also lead to health problems. You want to be careful with that. The second number on a bag or box of fertilizer is phosphorus. Phosphorus is a festival gardeners best friend. That's what tells a plant to put down deep, strong roots to flower and to put on fruit. That one's incredibly critical to growing a good vegetable garden. But again, more is

not necessarily better because phosphorus is the couch potato of nutrients. It just will sit there, but it needs a little bit of nitrogen to hand it off to the plant. It gets a little complicated, but what I want to encourage is more is not better. The last number on that bag of fertilizer is potassium. Potassium is very salty. You're always going to see that number in a very small quantity. There's some cases where you need more, but as a rule, you don't need a lot of it. Wyoming soils are naturally high in that enough nutrient, but it's a very salty one. But that tells plants like your grass and your trees to be cold tolerant, drought tolerant. It puts the red on your tomatoes. It helps you potatoes grow better. Also, you can find it as potash or Merida potash and so you need to have a soil test before you use this one, because this is going to be a bad boy in your vegetable garden if you put too much down or you're guessing. Soil test this. Especially if you're a beginner and you don't know what you've got or even if you've been gardening for years and you look at that and go, I don't know what that is anymore. [LAUGHTER] It looks like so, but I don't know what's in there. Soil test is going to tell you. It's going to give you a benchmark. I have everybody send their soil test down to Colorado State University, it's \$40. They give you a wealth of information and they give you advice on it. If you still don't know what it means, call one of us and we'll help you. That's our job. We're here to help you. Soil amendments in a vegetable garden. Do not put manure in your vegetable garden.

Now you're talking raw manure, right?

I'm talking about any kind of manure, composted, aged, been sitting in someone's corral for a couple of years, skip it totally. Don't even don't mess with it. It's going to be very salty. The NPK, the nitrogen, is actually very low. The whole, it's hot, comes from the salts. It's not the nitrogen because that NPK is very low. It does add organic matter. Better way to add organic matter without the salt, leaves in the fall. You should be keeping your leaves and keeping them in bags, and add them to your vegetable garden. Grass clippings are amazing, coffee grounds, peat moss, cottonseed meal, soybean meal. There are a whole bunch of things you can add back to your vegetable garden and aren't salty, that aren't going to cause you problems. But manures are going to just really set you upside down and more is not better with it. It's the salt in there that's going to really come back and bite you. If you get manure out of someone's horse corral, the weeds seeds are biblical. You will never win [LAUGHTER] that battle with the weed seeds in horse manure. Keep in mind that whatever they're feeding those animals goes in one end and comes out the back side. If they're on warmers, any antibiotics, that's all coming out the backside and you're putting that stuff in your vegetable garden. If you're trying to stay organic and clean food, you're not achieving that by putting manures in there and especially stuff out of the feedlot. The other thing, I'm still on my soapbox here, Jeff.

I'm letting you go. [LAUGHTER]

I appreciate that. The other thing with manures is a food safety issue. Even if it's been sitting there for years in someone's corral, doesn't mean that it's clean or it's

good. E.coli in cow manure will stay there for a year and it can become reinoculated with fresh manure or even just the animals being in close proximity to it. As I get older, I am very aware of these foodborne pathogens that you can inoculate your food with just by simply putting manure in there. Of course, chicken, you got campylobacter. Dairy cows, you got listeriosis. There's a whole list, but that's just a couple of them that can really make you very sick. Especially very young children, that's irreversible damage on E.coli to them. Don't go there. Don't grow your food in poo. [LAUGHTER]

Perfect. Very well said. I can't say it any better than that. If you really want an eye-opener, take a food safety course offered through the University of Wyoming. It is eye-opening how things get transferred and how we should not use certain things. Go [OVERLAPPING] ahead, Jerry. I think you've got a comment or a question.

I think our intestinal track is more fragile than what people will consider. Bob [inaudible 00:24:12] ago, I have a stomach that's a cast iron belly. Well, once you get some of those pathogens making a home in your intestinal tract, you're in for a world.

Exactly. Things can change very quickly. On that note, we're about halfway through our program. I think we should probably take a break and listen to our sponsors and we'll be back in a moment.

[MUSIC] Looking for the best way to keep up with all the news from University of Wyoming Extension, the College of Agriculture and Wyoming Ag Experiment Stations? The uwagnews.com website features real-time education, research and extension event, and feature stories from across the state. Bookmark uwagnews.com today and subscribe to our monthly email newsletter, uwagnews.com, growing people, knowledge, and communities.

Good morning again, everybody. This is Jeff Edwards and Jerry Erschabeck for the KGOS/KERM Lawn and Garden program. Our guest today is Katherine Wisner. She is an extension educator from the University of Wyoming in Laramie County in Cheyenne. We've been talking about growing our food and prepping our gardens. I think there's some questions that you had, Jerry, that you wanted to ask her after we [OVERLAPPING].

Yeah. Typically, I like to mend my garden with wheat, and some people say, "Oh, there's other chemical fertilizers. You just throw them out there rather than having your garden trying to work in order to take this product and assimilate it into your garden.

You're talking about a green manure, Jerry. You [OVERLAPPING]. Okay.

Then I [inaudible 00:26:02] it in and that thing. You had mentioned that cottonseed meal and the soybean meal. Where would one obtain some of that?

Well, you can get that from your feed store. You guys are actually really lucky, because you got some really good feed stores up in Torrington that can get you all



cool stuff. Soybean meal, cottonseed meal, those are all feed additives. Cottonseed meal is very cool to add to your soil. It actually help acidify the soil. If you go over to your vineyard there, they have what's called grape pomace, and that's the remnants from squishing grapes into wine, and so they have all this waste. I don't know what your vineyard does with them, but you can amend your soil with that. That's also an all-natural organic matter and will help acidify the soil. It's very cool. You've got some readily available sources, your feed store. One of my favorite soil amendment says alfalfa pellets, not just straight alfalfa but alfalfa pellets. It comes with a 50-pound bag. I pay \$11.5 per bag for down here in Cheyenne. You guys might get a cheaper up there. I'm feeding the soil. I'm not feeding the plant.

Sure.

There's a whole mindset change here that we've got to put Miracle-Gro on our plants and force them to grow. Well, the worst thing you could do to your vegetable garden is spray it with Miracle-Gro. [LAUGHTER] It will grow. You'll have the biggest, bushiest lush-looking tomato plants and pepper plants, but there's so much nitrogen in that that's what's causing it to be so big and bushy. You're not going to get much fruit off of it. It delays tomatoes from ripening. Too much nitrogen will delay that ripening process. You'll get very few fruit, and the fruit you get won't ripen until the end of the season, which is really [LAUGHTER] disappointing because we all want that tomato and that sweetcorn by the 4th of July, right?

Exactly.

You guys have got the perfect growing season for it. [LAUGHTER]

That's the goal.

That's the goal.

In some places in Wyoming, the 4th of July is the end of the summer. [LAUGHTER]

Yeah.

Katherine, you said that a lot of gardeners were chasing that elusive 7.0. You'd still have to do either this cottonseed or the grape's pomace or the alfalfa pellets every year?

Oh, yeah. Absolutely.

You're still chasing it no matter what?

No matter what. I put sulfur in my soil, soil sulfur. I'm on a sandy soil, which is a cold soil, and it's usually deficient of sulfur. I'm always chasing that one. I always put in some sulfur. [inaudible 00:28:51] feed store, and I can get a bag of sulfur, pretty cheap. Dried fish emulsion. That's another great one to add to your soil. You can get dried molasses. That's another great soil amendment. There's better ways to treat your soil and your vegetable garden than with manures. Just say no to growing your

food in poo, really. [LAUGHTER]

Do you have a bumper sticker for that? [LAUGHTER]

I should. [LAUGHTER]

Well, early on, gardeners, we're using all kinds of stuff to utilize, to think that they were amending my soil. I grew up that way. I mean, here we go with the truck and go to the corral and scoop it on and scoop it off and then plow it under.

My dad was the same way, he went and got a little load of fresh wood chips from a lumber mill, and I mean it was a big load that we incorporated into his garden and things didn't grow so well afterwards because all [OVERLAPPING].

So it just drives the pH up?

Well, not necessarily, but the nitrogen was being tied up, trying to break down all those wood chips so things did not grow like they needed to grow. Again, it's that mindset. We think we're doing a good thing trying to improve the soil profile and it will backfire on us. Again, Katherine, when you mentioned soil samples, if people are interested in this, is there information online how to submit a soil sample to CSU?

Most of the extension sites should have page or some directions to get a soil tube or soil sample. Colorado State University will have a whole page, a whole website actually devoted to it. You can go to the extension office. Here in Cheyenne, we have the little jars that you put your soil sample in and then you just ship it down to Colorado State University, and for \$40, they test it for you. It should be a dry sample. Don't put soil when they're wet. It will get moldy and skew your soil test.

Mike is bad.

Mike is bad. [LAUGHTER] On amending your soil, if you're not sure, call us. That's what we're here for. Certainly, all of us have got some source or resource or knowledge on what to amend your soil with, how to water your vegetable garden. Let me put this in a little perspective for everybody out there. I like to grow a big vegetable garden. I'm not really sure why other than it's just very passionate for me, just my husband and I. But last year, I planted 40 pounds of potatoes and I got 500 pounds back.

You must be doing something right. [LAUGHTER]

There's some tricks to doing this and doing it right. I don't over-amend the soil. I'm on sandy loam soil and I treat it very carefully. A lot of it comes down to how I water. This is the other misconception that people have about vegetable gardens.

Vegetable gardens are not drought tolerant. They don't like to go without water, and watering on a consistent schedule is critical. I promote and encourage use of a water timer, and you just attach it to your hose someplace, you put a couple of batteries in it, and you program it and it waters for you, which is very cool. [LAUGHTER] It goes on, turns off, waters when you're gone, that means you can take a vacation and

your vegetable garden will continue to be watered. Your neighborhood kids are not reliable.

Now, don't be blaming the kids. Some of the [OVERLAPPING] adults are not reliable either.

Yeah. [LAUGHTER] You're going to come home, the garden is going to be wet and all the plants are going to be dead. [LAUGHTER] Buy a timer for 40 or 50 bucks, is your best employee in the vegetable garden and it's a better employee than I am because it's consistent and I'm not. But vegetable gardens, and especially things like your tomatoes, your peppers, and your potatoes, which can be a little finicky on water, want that water very consistent every other day or whatever your soil profile tells you, you need to water. The other question I get, Jeff, is people call and say, "Well, how often should I water?" Well, what's your soils? I can't tell you unless you tell me what your soils are. [LAUGHTER] You need to touch your soil. Like Jerry was talking about, grab a handful of your soil, get it wet, do the ribbon tests. Is it clay, is it sandy? I'm on a sandy loam soil. It takes a little more water, water just go straight through. If you're on a clay soil, the water is just going to sit there and hang out forever. Know your soil because I can't tell you how often to water unless you can tell me what your soil is.

Is there a way to do a perc test or percolated test on your soil pretty easily?

Sure. I usually just dig a hole, fill it with water, make sure I check what time it is [LAUGHTER] and I walk away. I go do something else and come back and see how much water has percolated through and filtered through, how much water is still left in there. I'm on a sandy soil. I mean, it can go through really fast.

Yeah.

That's another good way to test.

It's funny, you talked about watering because, of course, there's two people in our household that like to water. My wife likes to water more than I. I will see that the soil is dry on the top but if you just scratch a little bit, maybe a half-inch, there'll be moisture below it. I mean, it looks and appears as if there's moisture. I like to wait just a little bit and Myrna likes to just go ahead and keep the top of the soil wet or have more water on it.

I don't know.

Wait a minute, Jerry. You're sucking Katherine into a family discussion.  
[OVERLAPPING]

Because it always goes, Jerry, ask somebody [LAUGHTER] and I'll ask.

[LAUGHTER] A family debate. Katherine, are you ready to picking your side here?

Here's my advice to you.

Buy a water timer.

There is a whole bunch of really cool toys you can buy to be a geeky vegetable gardener. One of them is a soil moisture meter. You can just slide this thing into the soil and it will tell you what the soil moisture is at any given depth that you put the moisture meter probe into. That might solve some of your family discussion there because now you have a unbiased source saying that it's dry or it's [OVERLAPPING] just wet.

Unbiased would be good.

Most of the time, you want your moisture at what level? Four to six. Because this is not where most of your roots are.

Inches deep is what you're talking about.

Four to six inches deep?

Thank you. [LAUGHTER]

I can tell by the look on Katherine's face, she wasn't on what you're talking about. [LAUGHTER]

I was measuring. I mean, I know that Katherine can see me, but I know the audience cannot. [LAUGHTER] Four to six inches deep about?

Well, again, it goes back to vegetables are not drought tolerant. It really helps put everything on a timer. I promote drip irrigation. It's a little bit better than soaker hose because you can be a lot more precise with a drip irrigation. Drip irrigation has got emitters every eight inches or 12 inches wherever you get. My drip irrigation, the emitters are eight inches apart and it's a half a gallon per hour. I know exactly what I'm watering my plants, and yeah, I do have a soil moisture meter tensiometer that I can check the soil moisture.

Geek. [LAUGHTER]

I am a geek recall stressed. I have a pH meter, I have an EC meter. I have all the toys. [OVERLAPPING] I make my own fertilizer.

How deep do you put that soil moisture meter?

Two inches.

Two inches.

Vegetables are very shallow-rooted, period. They're shallow-rooted. When you pull them up in the fall, are you pulling up 6-8 inches deeper roots? No. Your green beans are going to go a couple of inches. Tomatoes might go six inches, maybe.

Pumpkins have a pretty extensive root system.

But looking at their growing season needs, there are 110 days. They're going to put down a good root system because they're so long. That's the other thing. I'm glad you mentioned that because all these plants, all these vegetables have a days to maturity or a harvest by number. We're going to pick on sweetcorn, for whatever reason, the big-box stores and whatever like to sell us sweetcorn, Silver Queen, which is almost 90 days. While in Cheyenne, our growing season is 90 days, [LAUGHTER] and so you're not going to get anything in a meaningful [NOISE] time frame. You want to look at these days to maturity and that's going to guide you on what you buy. Buy a sweetcorn that's like 68 days, 65 days so that when you plant it, there's 14 days from the time it germinates until you see it, then you start counting another 60 days. That's when you're going to be able to harvest that sweetcorn. If you're trying to grow the Silver Queen and a few other that require a 90-day growing season, you're just not going to be rewarded. It's the same thing with tomatoes. Why do people want that big beefsteak tomato? Well, I love a beefsteak tomato too, but they are almost 100 days, 110 days on some of them. You're just not going to get a good reward on what your investment is. When you buy tomatoes, I encourage you to start your own from seed, but that's another story naturally.

That's a whole another program. [LAUGHTER]

That's a whole another program. But buy tomatoes that are short-season. They are going to be smaller tomatoes like your 4-6, maybe eight-ounce size tomato. But the beefsteak tomatoes, you're just not going to get that reward. I know you all down there in Toronto have got a much better growing season than we do, is a little bit longer, but set yourself up for success. That doesn't mean grow that big beefsteak, it means grow something that's going to be an eight-ounce, 10-ounce, four-ounce cherry tomatoes, something in that neighborhood, and you'll get a good reward of tomatoes. Same thing with the peppers. Check those days to maturity. Peppers can be as, especially persnickety, when it comes to growing them, they'll set back and I'll just sit there and do nothing for weeks on end.

Yeah. [LAUGHTER]

Yeah. Yeah. That's an actually growing peppers is a whole program onto itself. Days to maturity are very important. Water is critical. Put your water in the ground. Don't use an oscillator that throws the water into the air. All you're doing is watering leaves, it's evaporating. You're watering the weeds. You're encouraging disease, fungus, especially. Fungus loves cool, moist situations. You're going to have fungal problems. Water on the ground. Don't over fertilize. No manures. No miracle grow. Water on a timer. Get a soil test. The soil you've got is probably already pretty decent [LAUGHTER]. Just be careful how you amend it. You only want to work it once or twice. When you work your soil, you want to have your organic material, your leaves, your grass clippings, your alfalfa pellets, your soybean meal, cotton seed meal, whatever you want to have that spread out on top. Then you want to work that in. You only want to [inaudible 00:41:44] once or twice, or turn it over once or twice, the more you work your soil, the more organic material you will lose. I know that

sounds odd, but the more air you incorporate and the more you turn it, the faster it degrades and goes away. If you work your soil when it's wet, you'll cause compaction. Vegetables don't like compacted soils, especially onions. They don't like that at all [LAUGHTER].

Katherine, could you put the alfalfa pellets down as a side dressing to try to keep your weeds down along, say your onions or say any of your peppers. I mean, just put it down along the row as a weed barrier.

Here's the thing with alfalfa pellets. When they get wet, they expand and then they break down to turn to mash. The whole idea with using alfalfa pellets comes from Dr. Elaine Ingham with a food excuse me [LAUGHTER], soil food web [LAUGHTER]. I don't know why that one was tripping me up. Dr. Elaine Ingham was a professor at Oregon State University. Amazing woman, the energizer bunny of instructors. She started the whole thing with compost tea. She also use a lot of alfalfa pellets. Then the American Iris Society and the American Hostile Society all use alfalfa pellets. The American Row Society uses alfalfa pellets as a way to fertilize their plants. What we're doing here again, is we're feeding the soil, very important feed your soil. The soil builds up all amazing microorganisms that break down the nutrients and then hand them off to the plants. You want that soil relationships to the plant, instead of force feeding your plant with miracle grow because that's all you're doing with miracle grow, you're force feeding that plant, not helping the soil. It's about as unorganic as you can get. When I teach some master gardener program, I teach everybody how to make their own fertilizer, I tell everybody in class you're going to become a geeky Master Gardener and here's your first step in doing it. You're going to learn to make your own fertilizer [LAUGHTER]. It's easy. I make alfalfa pellet, tea. I take one pound of alfalfa pellets, I soak it in a bucket of water, a five-gallon bucket of water, anywhere from 8 - 24 hours, but no longer than that because it starts to ferment and get weird.

It turns to bitter? [LAUGHTER]

How long? What was the time-frame?

[LAUGHTER] No longer than 24 hours Jerry.

No longer than 24 hours. Yeah. I'm sorry. Yeah. It'll start to ferment [inaudible 00:44:40].

That's not good.

In some things it's okay and good. But this is not good. It's all I can say.

I'd rather buy my beer out of a bottle anyway. [LAUGHTER]

Yeah, alfalfa beer. No thank you. That's a whole new term of a porter beer and its sour a little.

I think that's one of those that would be described as being very earthy and we all

know what that means. Tastes like dirt. [LAUGHTER].

[LAUGHTER] Assume too, tastes like dirt.

Let's [inaudible 00:45:19].

Sorry, Katherine.

Okay. Yeah. Back to business. [LAUGHTER]

That's okay. I've also taken just plain alfalfa pellets and when I do potatoes I'll amend the soil pretty heavily with alfalfa pellets. It's 20 pounds per a 100 square feet. It takes a lot of alfalfa pellets, especially where I had [LAUGHTER] 40 pounds in the soil seed potato, that was equated into tree 75 foot rows. [LAUGHTER] I don't know what I was thinking. My garden size has been as big as 5000 square feet. I've grown in high tunnels. I've not grown in a high tunnel at this time. I'm just doing everything outside. There's ways to cheat the season and make the season work for you without a high tunnel. That's where I'm going now, is how to do it without a high tunnel.

Is the alfalfa tea mixture, is that you're fertilizer regime or have we I mean, is that it? What do you do?

Once again, I've been hoping not being a geeky horticulturist. I do the alfalfa tea. When alfalfa tea is soaked long enough. I then add two tablespoons of fish emulsion per gallon of water. I stir a little in. This is just before I go to fertilize my plants. I then add the magical ingredient of one chord of corn syrup. I buy the cheapest corn syrup I can find. Let's go to the Dollar Store or Family Dollar or whatever is in your neighborhood. You could probably go to the feed store and get it. [OVERLAPPING]

Is it a chord per gallon or a chord per five gallons?

It's a chord per five gallons. Everybody looks at me goes, "Oh, you're going to get ants." No, I'm not going get ants. I'm not feeding the ants. I'm feeding the soil microorganisms and I'm encouraging the good fungi and the good bacteria to grow. It's a pretty magical thing and it doesn't create bad ants. It doesn't create insect problems. I stir all this together, and then I give each plant one cup. I'll do this once a week throughout the growing season. One cup per plant of my alfalfa tea mixture, and it's pretty benign. I've had a master gardener come up to me and say, I made this tea and my three-year-old walked over to it with his lollipop and stuck his lollipop in there and, and put it in his mouth. I go on well, it's not going to hurt him. Probably didn't taste good.

As long as it hadn't fermented more than 24 hours? [LAUGHTER]

Yes, exactly. [LAUGHTER] Then my other shot at that was only a little boy would do that. A little girl would never put her lollipop in something like that. [LAUGHTER]

I probably would've done it as a kid. I [inaudible 00:48:14] thought myself. Yeah.  
[LAUGHTER]

[LAUGHTER] It's an easy fertilizer to make, it's all-natural, it's organic, ingredients are readily available, you're feeding the soil. The soil is going to reward you and future plants. This is what I used to feed my vegetable garden. We have 500 pounds of potatoes last year, [OVERLAPPING] just with alfalfa pellets and that's it. You don't have to get crazy with all these manures, and more is not better in a vegetable garden, and it's really hard to take that away from people, because they really do want to overlove their vegetable garden, and it comes down to less is more, your watering has got to be consistent and spot-on because your vegetable garden is not drought tolerant.

Jerry, are you extrapolating? Are the wheels turning?

Wheels are turning like nobody's business.

Have you decided that this is the regime you're going to start for your giant pumpkin contest?

Well, it could be.

[OVERLAPPING] But you're not going to tell anybody. [LAUGHTER]

No. There's a guy around Cheyenne, Katherine, that grows big, giant pumpkins, and he did not win our last years, Jay, out of Warland, won last year. But some of these people get crazy of course that we're not eating this pumpkin, we're just growing this pumpkin, and it's all weight base. But when you feed your soil, you have a better pH, you have a better chance at any of the micronutrients that you might even put in if you're going to try to encourage large growth. I can see a lot of benefit out of this. The one thing I didn't hear, can you use the alfalfa pellet as a weed protectant? Can you put it in between the rows and just work it in as you go?

It really doesn't do anything to prevent weeds. Sorry.

All right.

Yeah.

Not even [OVERLAPPING] as a cover?

What I do is, once I add all my other ingredients to my alfalfa tea, I let it settle, and then I just decant the tea off, and then at the bottom is a mush. It's the alfalfa pellets have broken apart, and I'll take that mush and I will put it on the soil, and it will harden, and so that could actually be used as a weed barrier. But what I like to use better is black plastic. Jerry, well you like to grow those giant pumpkins, and that's a long season endeavor, that's at least 110-120-day vegetable. I grow all my winter squash on black plastic. I'll go in and I'll mend the soil with my alfalfa pellets, I'll put a few other things in there, soil, sulfur, some dried molasses. Again, I'm feeding the



soil. I'll build that soil up, and then I cover with black plastic. My irrigation's underneath that black plastic, and so your winter squash, and your tomatoes, and your peppers, and your green beans, and your corn, all want hot soil. This is another thing that's really hard for, especially my master gardeners to wrap their head around, and just beginning gardeners, they want their soil hot. What is hot? I actually have a meat thermometer. Now I've gone digital. I'll put the meat [LAUGHTER] thermometer into the soil, about 2 inches, and I'll take that soil's temperature. I want 85 degrees. My tomatoes are happy at 85 degrees, or my peppers. My winter squash, I got 150 pounds of winter squash for two people last year, and you can say I was driving up and down the neighborhood out here and going to work with potatoes and squash for everybody. [LAUGHTER] But they want it hot, and the way you do that is with your black plastic, and that's also your weed barrier. I mend my soil, I put my irrigation down, I cover it with black plastic. Now I go to the hardware store and [LAUGHTER] I go through the dumpster. I do a little dumpster diving and I pull out the black plastic that covers the wood bunks that they get in. It's free. I like for me. I try to do my vegetable garden as cheapest as I can, because I got to beat the grocery store prices. Put the black plastic down, and I grow everything that likes it hot on top of that. All these plants reward me. My vegetables reward me very well with one soil, spot-on irrigation, not an over mended. I don't want salt in my soil at all, so I'm very careful about that. But that black plastic heats up that soil and it prevents the weeds. You're talking about fighting weeds, this is the way you do it, it's with that black plastic, and then the worms love it. Oh my gosh. I'll pull it up and I'll have worms underneath there and all sorts of stuff going on. It's pretty phenomenal, it's pretty magical. Got to be a geeky horticulturist to like all the bugs. [LAUGHTER] Or maybe a geeky entomologist. I don't know. [LAUGHTER]

Sure.

The only problem with that is that our soil, our neighborhood, has victory voles. The reason why I call them victory voles is because if they're gone, that's a victory. [LAUGHTER] Our mobile's fairing that if I put a cover over the garden, they'll say, "Hey, this is just as good as your garage that you built me, because now I can tunnel underneath the cement, I can tunnel underneath the plastic." What do you think about that?

I have pocket gopher problems out here, and I occasionally have had them turn up whopping amounts of soil for me, and they're better than the rototiller, but they're not welcome into my vegetable garden and my flower garden for sure. They're really hard to control. There's traps for them, is probably the most humane ways with the traps. There's repellents. The conservation district likes to use garlic as a repellent. There's ways to deal with it. But I am so pretty adamant about the black plastic really helping you grow good [inaudible 00:54:57] .

I would suggest you try it Jerry, and see what happens.

Yeah, I am in. We've talked about it before, but that gives our voles a home without

any restriction, and they can [inaudible 00:55:11] . [OVERLAPPING][LAUGHTER]  
"Hey, Ralph, come on over, I got a great spot."

Bring Sally with you too. [OVERLAPPING] [LAUGHTER]

We're going to be drinking alfalfa tea. I hate to cut it short. Great conversation, Katherine, thank you for being our guest today. I think that we are pretty much about out of time. Jerry, do you have things going on in the area that we need to talk about?

I think if you're one to plant sunflowers, even though that this is an early time, sunflowers are so tough. I have volunteers coming up right now. I know a lot of farmers hate sunflowers, even though some farmers grow sunflowers, but they are a spectacular flower to put in your garden. They bring in birds, bees, pollinators, ladybugs, [OVERLAPPING] pseudo ladybugs. They are a wonderful plant I think. Now's a great time to go ahead and plant those sunflowers.

Perfect.

That's all I've gotten. I had a great time today. Katherine, thank you so much. It's been enlightening.

We are going to have you back in a couple of weeks. So if folks have questions, please contact myself using my email address which Ryan has posted on their website, and we will get your questions asked and answered, hopefully by our guests. So we can prepare for next time. But other than that, as the weather gets to turn nicer, we are encouraged to get out there and plant something, get your gardens going, and with that, we'll see y'all next week.

You've been listening to Lawn and Garden, with the University of Wyoming Extension specialists, Jeff Edwards, and co-host, Jerry Erschabeck. As the snow melts and the sun breaks, the University of Wyoming Extension, has many upcoming virtual and hybrid learning programs available to you. Look at each week for details on new events and how to make your garden flourish. Good day and happy gardening.