



Season 1 Episode 2 – Growing Tomatoes

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Brian Brown

One of the most popular garden vegetables can also seem like the most difficult to grow. So today we have Mallory, Kelly, REA in central Alabama here to help us take some of the mystery of growing tomatoes today on From the Ground Up.

Narrator

From the Ground Up, a podcast of the Alabama Extension Home Grounds Team, educating you about home landscapes, gardens and home pests.

Brian Brown

I'm your host, Brian Brown. Welcome to the podcast Mallory.

Mallory Kelley

Thank you for having me, Brian.

Brian Brown

What is the deal with tomatoes? Like how? Why is it so many people have so much trouble growing tomatoes?

Mallory Kelley

Well, I think that's because so many people grow tomatoes. And like you said, it's the most popular plant in the vegetable garden, but it's also the most problematic. So if there's an indicator plant in your garden that something's going on, either it's addressed from a herbicide or an insect or disease pressure that is in the area that your tomato is going to be the first one to show you those signs and symptoms and indicate there's an issue going on.

Brian Brown

What would you say is the the thing that affects tomatoes the most?

Mallory Kelley

Oh, gosh, definitely. Oh, it's hard to narrow it down to just one. I would say it depends on the time of the year, if they're early in the season or are you late summer. But our foliar fungal issues are going to be a huge issue. Pretty much every tomato out there is going to be susceptible to early blight, which is a fungal issue that's existent in our souls everywhere.

Mallory Kelley

So we can do some integrated pest management strategies to suppress those fungal issues by mulching the soil so that we don't get rainwater, splash also drip irrigation instead of overhead irrigating our crops, watering early in the morning instead of late afternoon. There's lots of different things that we can do to help suppress those fungal issues that are there and they're going to be prevalent and a problem.

Mallory Kelley

In addition to then spraying a preventative fungicide, add on those plants. But then as you get further into the summer, you still have those fungal issues, but then you've got insects replicating and the warmer the temperatures are for the longer the period of time, the more generations of moss you're going to have, which then you have tomato horned worm, fruit, worms, those type issues to go out there and combat so that they're not eating your all the foliage or even the fruit off your plants before you are able to collect a harvest.

Brian Brown

I know there's a lot of when you bother tomato in the store, you can look on the tag and there's also codes on there.

Mallory Kelley

Right. There are a lot of things to think about before you put that plan in the ground, selecting the right variety. And that is there's there's it's a tricky, tricky web to to sort through. So first of all, what kind of tomato are you wanting to grow? Is it for your salads or to put in a pasta salad or are you wanting to grow those large fruit for a BLT in the middle of July?

Mallory Kelley

Are you sold on heirlooms you like the taste and the flavor of those, or are you more geared towards your fine with like a hybrid type tomato? So first of all, that's the type of fruit. Are you wanting small cherry size or are you wanting large fruit? So that's the first thing to consider. When you go to then the garden center, you're going to want to determine where you're putting this plant.

Mallory Kelley

Is it going to be in a raised bed? Is it going to be in a pot on your back patio, or are you telling the ground and you're planning a row of tomatoes? Are you putting it in your greenhouse? Different situations are going to be better for different types of tomatoes. When we talk about type, there's the term in it and then there's

indeterminate tomatoes, So determinate are pretty much all those that we're going to buy in the grocery store, they're going to determine height, and that's for commercial production in a field type setting.

Mallory Kelley

They can go out and harvest most all their fruit in a short window of time and then replant and they flesh those varieties, flesh all their fruit in about a three or four week timeframe. And you also don't have to stake and trellis them so high up in the sky, you know, tying them to the fence in the backyard or, you know, creating all those structures for that.

Mallory Kelley

Now an indeterminate tomato is going to grow indeterminate, like it can grow 20 feet long until a frost or a disease or something like that kills it back. It will continue to grow. All tomatoes are vines, but there's two different really types that indeterminate is going to grow for an extended period of time. But just giving you a few fruits here and there throughout the season where a determinant are going to flush all of its fruit at once.

Mallory Kelley

So a lot of times people will say, All right, well then I guess I want an indeterminate well, because they want to continue to have that fruit, but a determinate variety. You're going to get more fruit at one time, but you don't have to deal with all of the staking and trellis thing. And then you can always succession, plant or print off a sucker and plant another fruit crop coming on behind it.

Mallory Kelley

So first of all, determine and if you want to determine it or an indeterminate and then from there deciding how much insect and disease pressure you've had in your area, how much of a problem have you had growing tomatoes in the past? And then you'll want to look for disease resistance. And that is indicated on the tag like you're referring to when you go to the garden center.

Mallory Kelley

So first of all, what type of tomato do you want? Cherry tomato, big, large fruit set. Then do you want determinate or an indeterminate variety? And then disease presence is going to determine like if the more letters you get on the tag, the more resistance are bred into that hybrid variety. So if it says the F in TSW, those are all letters that indicate disease resistance that are bred into those hybrids.

Mallory Kelley

But if you go with an heirloom variety, you're not going to have any bred resistance. So your plants are going to be susceptible to all of those issues.

Brian Brown

So you really are going to have to do a lot of homework before you start planning your own tomatoes and planning your garden out, correct?

Mallory Kelley

Ideally to be successful, right? Everybody's growing them and they're the most popular plant in the vegetable garden, but again, the most problematic. So if you do your research ahead of time, you know what you're shopping for to make the best selection for your home garden to be successful, then you're going to be more successful on the back end with picking the right type for the environment that you have.

Mallory Kelley

And then the the more disease resistance is definitely going to give you a leg up, especially if you don't like to spray, because putting those fungicides out there can help with some of those. But again, it's not a guarantee. And then if you don't like to spray, then more resistance is going to give you more protection.

Brian Brown

Yeah, I think a lot of people have a lot of misconception about spraying fungicides because they get fungus on their tomatoes or their plants and they want to cure it. And fungi really doesn't act like that on a plant. You know, once it has it, it has it. There is nothing you can do. It's not going to heal itself.

Brian Brown

It has to put on new leaves to.

Mallory Kelley

Ever compensate for that foliage.

Brian Brown

Yeah.

Mallory Kelley

So what exactly.

Brian Brown

Yeah. So I get a lot of, you know, a lot of calls about that. And, you know, they think that the leaf is going to heal. So I'm like, well, it's really a preventive. So that's really what I try to stress with people is, hey, you have to prevent this. It's not something that you can cure.

Mallory Kelley

Exactly. And a lot of times those fungal issues are going to start on the lower leaves again, right at the soil surface where there's fungal spores are splashing up onto the leaves. So limbing up your plants so that their foliage is not laying on the surface of the soil, or even I know when they're really small plants, you can't remove all the foliage, obviously.

Mallory Kelley

But as they grow, removing or at least the bottom foot of the plant so that there's space between the ground and those branches and the water can't splash up as much. But then starting that fungicide spray when they're small, then when you start seeing fungal spots, brown yellow lesions on the fruit, on the leaves going in there and picking those leaves off and then of course, spraying that fungicide on the green healthy tissue is going to prevent those fungal spores from then continuing to travel up the plant.

Brian Brown

Yeah. And, you know, cleaning up around the tomato at the bottom, if there's any dead leaves or anything like that, making sure those are cleaned up too it is a really important thing, because if there's spores on that leaf, it can splash and kind of work its way up and continues to splash up the up the plants.

Mallory Kelley

And once it a plant is done, pull it out. Don't leave plants that are even when you're finished harvesting at the end of the year in their tomato cages or sitting out in the garden to just compost themselves, go ahead and remove them. I wouldn't even add them to my compost pile. Just get rid of disease, tomato plants for sure.

Mallory Kelley

And that way those fungal spores are not overwintering in that plant material. And then they're just sitting there primed, ready to go next year. As soon as the temperatures are favorable, we get afternoon rain splashing up on the foliage. Then you're going to start seeing those issues. So breaking the cycle by removing the plant material, as soon as the plant is finished, production is going to be another key to success.

Brian Brown

So, Mallory, there's some organic options that you can use for fungicide, correct?

Mallory Kelley

There are some organic options. Copper is oftentimes a product that we'll use in the garden. We use it for fungal issues as well as some bacterial spot or speck on the fruit or the foliage sulfur as well. And then there's some oil type products, neem oil out there. But be very careful with those in the vegetable garden as we go into the heat of the summer, because oftentimes it'll end up burning the foliage and the fruit.

Brian Brown

Yeah.

Brian Brown

And you can use oils for other things too, like insects. Correct?

Mallory Kelley

You can. And even soaps are used for soft bodied insects. It will suffocate the body of the insect. So it depends on what kind of insect it is for sure.

Brian Brown

So when you say soaps, you're not meaning liquid dish detergent soap, Correct?

Mallory Kelley

Right. And most of it I'm not. I mean, some some gardeners will use those, but a lot of times they have lotions and aloe and things like that mixed in there as well. So I would recommend that you go and buy an insecticidal soap is actually labeled. We want to make sure we follow the label with any of these products that we apply.

Mallory Kelley

Make sure that the insect you're trying to control is listed and that you're also following the directions on temperature and timing, how many days you need to wait before you can apply it again. And even the post-harvest interval date should be listed on there as well. So it may tell you one post harvest interval or seven or ten, fourteen, twenty-one... just depends on the active ingredient in the product and that means you have to wait seven, ten, even 21 days from the time that you applied it until you can harvest the fruit and actually consume it.

Mallory Kelley

Another insecticide that we didn't mention just a second ago that is organic and I recommended in all vegetable gardens, whether you're growing tomatoes or lettuce, broccoli, cabbage, collards, anything like that is *Bacillus Thuringiensis* often sold as the trade name Dipel®, but it's a bacteria that's a gut poison to tiny worm larvae really only works against them when the larvae are really small and when you don't really see them or the damage that they're producing.

Mallory Kelley

But you can keep it out there regularly. Oftentimes it's bought in the garden centers as a dust and you apply it to the foliage. It has a zero post-harvest interval date. So again, it's a bacteria that's a gut poison to worms. But for humans it doesn't affect our gut. So of course you'd still wash the fruit before you consume it.

Mallory Kelley

But it's a really good control for just worms, and it's going to be specific. So you're not killing ladybugs and honeybees or anything else of that nature. You're only can controlling worms in the garden.

Brian Brown

So how does the rain affect those?

Mallory Kelley

Yeah, if it rains, you pretty much need to go back out and reapply. That's almost with any of our insecticides or our fungicides that we apply. You want to try to do it when you've got to at least a few days span in the weather when it's not going to rain for it to be most effective.

Brian Brown

So one of the most common questions I get about tomatoes is blossom end rot. Because a lot of people have this problem and a lot of people think it's a disease. You know, they're like, what's wrong with it? It's but it's really not a disease. You know, I think it's considered a disease in, you know, in professionally and whatnot.

Brian Brown

But it's actually a physiological disorder.

Mallory Kelley

That's right. With blossom and rot, a lot of it can be prevented with a soil test. So we recommend at least every three years, go out there, collect soil, get a soil test, send it off to the lab, \$10 now at Auburn University, and they can give you recommendations, mostly for your pH range and make sure you have enough calcium in the soil.

Mallory Kelley

But most times with blossom end rot most times it is not so much that calcium is not available in the soil, but is the environment in which the plant is living. A lot of times there is calcium there, but our soils will go from saturated with a lot of rainfall or a lot of water from you out there in the afternoon with a water hose.

Mallory Kelley

And then we don't water again or you go on vacation for the next week or two and the soils get bone dry. So we're going from really saturated to really dry conditions back and forth. And that oftentimes is what causes it. The calcium is there. It's just not available for the plant to take it up. If you can moderate your moisture level in the soil, then you're going to most times eliminate the blossom end rot issue.

Mallory Kelley

And that can be done with, of course, drip irrigation, putting that water directly to the soil. But I tell gardeners the number one thing you can do to be successful in a vegetable garden is to mulch putting that thick layer of mulch around your plants. And that's never done in a vegetable garden. I don't know if it's because the size of a garden, if it's in-ground, oftentimes that seems overwhelming or no one ever sees a garden like that mulch.

Mallory Kelley

So then they don't match their raised bed vegetable garden. But mulching your garden is going to be key. Either, you know, raking up leaves in the fall and piling them up to then later use them as a mulch is also a free source. If you don't have control nearby that you can rake. But that's going to keep the soil a constant temperature and keep the sun from hitting it directly and drying it out.

Mallory Kelley

And that will oftentimes eliminate the blossom end rot issue.

Brian Brown

Yeah. And so one of the things about blossom and right. And now we're going to get real technical on everybody here. Calcium is uptake in where the water to the plant the calcium ion actually binds cell walls together. And so when that calcium is not in that plant, the cell walls kind of break apart. And so that's what you're seeing because that's the most active growing part of the tomato is on the on that distal end of it.

Brian Brown

So on the end of that tomato or the bottom of the tomato, that's where you're going to get that rot or what looks like rot. So it's really just that tomato end collapsing because its cell walls aren't bound together. Sorry for the technical explanation, that's how it works.

Mallory Kelley

That's awesome. That's right. And it's not just tomatoes. You'll see it in your squash and zucchini sometimes as well. And watermelons. A lot of our melons are also susceptible to it.

Brian Brown

So what kind of other problems do you see with tomatoes?

Mallory Kelley

The presence of southern blight is also something that you should be on the lookout for. With that one, we can easily identify it because of seeing the actual spores in the mycelium of the fungal issue right at the base of the plant where it enters the ground. So that would be something to keep an eye on. Bacterial wilt is more common, I would say in my area it's a bacteria that's in the soil and it clogs the vascular system.

Mallory Kelley

So you go out in water because the plants look wilted and then you go back out and they don't look any different. They they're healthy and happy and green. They just look like they haven't had water in in three or four weeks. Even with your continue watering, they don't perk up. And that's where that fungal that bacterial issue has clogged up so that the plant can't take up water with that one.

Mallory Kelley

You need to be very careful removing the plant and all the soil around the roots, being careful not to take your shovel and dig here or move soil here or there, you're really going to want to pick up and move to a different area to garden. So that's a hard one when you get it in in the soil.

Mallory Kelley

And nematodes are another thing too, to be on the lookout for with tomatoes. If your plants are just stunted and aren't producing as well as they should at the end of the year or, you know, once once they are, they're

done with most of their production. Make sure you inspect your plants and look on the root system for little knobs and nodules.

Mallory Kelley

And that would indicate that there are nematodes in the soil. And oftentimes that causes a suppression of growth and production. Also, your tomato spotted wilt virus. Again, that's one that we do have some bread resistance to on the tag you'll see. TSWV That is a virus that's transmitted by a tiny little insect You can see with the naked eye, but you wouldn't see it unless you're out scouting or looking for it directly.

Mallory Kelley

But it's a virus that's transmitted and really hard to control, especially because insecticides and things you put out there, the insects are already transmitting the virus before it ingests enough of a product to kill it. And then it's infected your plants more of an issue commercially because of our industry dependance on tomatoes in a in a field type situation.

Mallory Kelley

But homeowners absolutely can get it. If you have a plant that's distorted in growth, bronzing of the foliage and yellowing stunted that wood and then concentric rings on the fruit is an indication that you have tomatoes spotty well virus.

Brian Brown

So what about fertilizing? What is the best fertilizer to use on a tomato?

Mallory Kelley

When it comes to fertility: soil testing. Obviously, you want to make sure that your pH is in that mid range of 6 to 6.5. Want to make sure that you've got enough nitrogen, phosphorus and potassium out there. But remember,

tomatoes are vines. So if you over fertilize them, you may not get a lot of fruit production, you'll get a lot of vine growth.

Mallory Kelley

So if your plants are really lush and green and happy but you're not getting any fruits, it is probably because you've over fertilized it and is sending more into vegetative growth and not into fruit. So a lot of times I tell people you may need to stress that plant out a little bit and are especially nutrient-wise. And when a plant is in stress and oftentimes cause it to flower and produce fruit, it wants to naturally perpetuate itself with offspring.

Mallory Kelley

So just make sure you don't over fertilize, especially with a nitrogen fertilizer. And then the phosphorus is that middle number in a fertilizer bag or a product, and that can build up in the soil over time and cause some issues in the plant. And you can see some results of sometimes if you've got like purple colored foliage or a yellowing of the foliage, that would be an indication of some either lack of or toxicity of too much of a nutrient.

Mallory Kelley

So of course soil testing is going to be your best bet and then following those recommendations.

Brian Brown

So another problem I get calls about a lot is, especially in the late summer, people having their tomatoes drop flowers. What causes that?

Mallory Kelley

Tomatoes dropping their flowers is really due to heat in the summer. We, you know, naturally would not find a tomato growing in Alabama. It's in a mountainous range in South America is where they're native to. So they really don't like our hot, humid summers. Of course, we've hybridized them to find varieties that do better for the situation where we live.

Mallory Kelley

But if you do have an issue with them aborting flowers, make sure that, you know, if you have the ability you could put a shade cloth over them or if they're in a pot or container, you could move it to an area that gets a little bit of afternoon shade if necessary. Also, just ride the wave.

Mallory Kelley

Because and keep putting out that fungicide to keep the plant foliage happy. And then knowing that, you know, cooler temperatures will eventually come if we're in August, hang on. You maybe can keep it alive until we get some cooler days towards the fall months. There are also heat tolerant varieties that are now due to hybridization. We'll do better in our area and most of those have some type of solar indicator in their name.

Mallory Kelley

So Solar Flare or Heat. And so Sun Master, things like that that you can use as an indicator that that plant is more tolerant to really hot summer days. Certain varieties are going to mature a lot faster than others. Some will produce in 50 to 60 days, unlike Early Girl, for instance, Early indicated in her name, she'll produce in about 50 to 55 days where there's late varieties like Ace is when most of our heirlooms Brandywine and Cherokee Purple, those are going to be long hundred days before you're you're going to be seeing fruit on that.

Mallory Kelley

So you again, with an heirloom, you've got a plant that's not bred for any resistance that you've got to keep alive so much longer before it's even going to start producing a fruit for you. Not to say don't grow an heirloom, but mix in some hybrid varieties in with your heirlooms. So you're not putting all of your bank account in on a certain variety that that may end up down on you before you end up coming into harvest season.

Brian Brown

So speaking of harvest, I remember my mom and my grandma, they would pick tomatoes, green and then put them on the windowsill and then they would turn red. So what's the difference in picking them green? Let them turn red versus letting them ripen on the vine.

Mallory Kelley

Right. So an advantage to that as a homeowner is that tomatoes will continue to ripen. Not all fruits will do that on their own. Some you have to wait until they're completely ripened before you harvest them. But with tomatoes, a lot of times that will help you avoid some of the critter problems with birds coming and pecking at the fruit, squirrels coming and stealing your harvest and then also worms.

Mallory Kelley

Maybe you won't have to spray as long to keep the worms from getting in there and destroying the fruit on the plant. So, you know, bringing them inside, there's there's really no problem with that. Some people do say it affects the taste. The longer it stays on the vine. Of course, it is getting nutrients and water from the the root system of that plant.

Mallory Kelley

But what what really happens on the windowsill is the sugars continue to accumulate in that in that fruit as it also ripens up and it becomes softer and more more tasty. I guess you would say. Of course, I like a fried green tomato as well, but for a BLT, you definitely want a real ripe, juicy tomato.

Brian Brown

Mallory, thanks for joining us today. I hope everyone has learned a little bit about growing tomatoes and hopefully you'll be successful this summer and growing them.

Mallory Kelley

That's right. Thank you for having me. And just implementing a few of these tips along the way, whether it's fungicides or putting in mulch or scouting for insects, things like that along the way will definitely help increase your success and I hope everyone has a great summer and enjoys those tomatoes.

Brian Brown

If you have any questions, feel free to contact your local extension agent and until then, see you next time.

Brian Brown

From the Ground up as a production of the Alabama Cooperative Extension System.