



Season 1 Episode 5—It Starts with Soil

March 6, 2026

Announcer

Welcome to the *Southern Ground* podcast provided by Alabama Extension through Auburn University. Extension educators Shane Harris and Dr. Chip East discuss seasonal lawn and garden topics, address common questions, and provide the practical solutions you want to know. Let's dig in to our southern ground.

Shane Harris

Hello everyone, and welcome to *Southern Ground*. Shane Harris here with you, my buddy sitting across from me is Chip East and we are horticulturists or the Alabama Cooperative Extension System through Auburn University. And here we are for another episode. And today we're going to really dig deep into a, a very popular topic and a lot of questions.

Shane Harris

We get on improving your soil and it all. Chip, it always starts with the soil if you want to grow any kind of plants.

Chip East

Absolutely the plants grow. If we don't have good ground, we're putting them in the growth certainly slows down. And you can't be an extension agent without telling everyone the first thing I want to see when I see a plant problem, I want to see a soil test.

Shane Harris

We are trying to say that in day one, even if we don't know the answer, that's a sort of inside joke folks. If you don't know the answer, we can't figure it out. Then we always say, take a soil test to see where we're at.

Chip East

And we can't look at the ground and know what nutrients are missing. When you see that in a plant and there's we've done a lot of meetings on, hey, this is this deficient in this element or that element, once you see it in the plant it takes time to correct that. We want to correct the problem before we see it in the plant.

Chip East

So absolutely let's do a soil test before we plant.

Shane Harris

And that's where it starts with the soil. You want to invest in good soil, improve the soil, sometimes you just inherit bad soil. It's eroded. It's rocky. You don't have any topsoil at different parts of the country, different parts of the world. Sometimes it's just better it's more fertile than others. And but there are some things that we may can do.

Shane Harris

But from our perspective, as extension agents, we get a lot of questions to begin with, I can't grow this. This plant doesn't fill in the blank. I can't grow tomatoes. I couldn't grow tomatoes at horticulturist, so I had to do something different. And that was doing raised beds because the existing ground had drainage issues, it is heavy clay. If you're looking to buy new land, you're looking to do a garden.

Shane Harris

There's lots of steps that you may have to do to try to prove that soil.

Chip East

Sometimes you have what you have and where we live at we have a lot of heavy clay. True. Well, we just need to improve that by adding organic matter. A lot of times we grow cover crops that adds organic matter and but it always helps to have a tractor. It helps that equipment can speed you up. I would hate to do this shoveling turning soil with a shovel over acres.

Chip East

Anyway, the equipment helps, but planting cover crops is a great idea.

Shane Harris

Yeah, and there's all kinds of soil in Alabama, throughout the southeast, worldwide. We just don't have those fertile soils like in the Midwest. And here in Alabama you and I are from Clay County and Chip I told you out there for years and years, I thought it was named for the soil, that red dirt that we grew up with that's on truck tires.

Shane Harris

It's on our feet and we walk in the house. And mama first is about, that red mud red clay. I thought it was name for that red soil that's there typically lacks the topsoil. It's not as rich as other places of the world.

Chip East

And this is true all along in the South is there are soil microbes in the ground, bacteria and fungi that break down organic matter. Well, they're working basically any time the grounds not frozen. So, you go up north if the ground stays frozen 100 days during the year, those soil microbes are not breaking down their organic matter. For us there may not be, but a few days a year, maybe no days a year

Chip East

The ground is frozen, but at the most one or 2 or 3 sometimes depends on the year. Our organic matter is being broken down, so we're continuously adding organic matter.

Shane Harris

That's an important thing to start off with regards what kind of ground you have. It is soil. Some people call it a four-letter word dirt. That's a Doctor Charlie Mitchell joke. The dirt is what you track in the house on your shoes. Dirt, what gets under your fingernails, that's what's on the side of your car, that's the dirt.

Shane Harris

But we're trying to improve the soil. And a lot of places in Alabama just don't have topsoil left.

Chip East

And that's a good question to that definition, because by definition, soil has organic matter in it. So, if you don't have organic matter in it, maybe you do have that for letter word. I don't know.

Shane Harris

It's dirt.

Chip East

It might be. So, we need to improve that and make it soil.

Shane Harris

So how do we improve it to make it soil that takes time. That takes generations and generations, especially of our Clay County soil that we grew up with that we still farm in; you've got cows on. I've grown the potatoes in there with my family over the years. It's red and there is no topsoil in there. But I always joke that up the road there was a neighbor that had darker, richer soil in that same clay soil, and he could grow anything because it was more fertile.

Shane Harris

He had organic matter in that. And most of organic matter is gone.

Chip East

Someone might be doing something to improve the organic matter, and that's important. I will tell you, there's good and bad with the good thing about clay it holds a lot of water. The bad thing about clay, it holds a lot of water. But I would say the same thing about sandy. The good thing about sand, oh, it drains good.

Chip East

The bad thing drains to in a drought, I don't know, drought. I'd rather have a clay soil. If it rains all the time, I'd rather have the sandy soil. So, it just depends. But whether it's sand or clay, organic matter is going to help.

Shane Harris

Organic matter, sources would be leaves, maybe grass clippings that have not been treated and we mentioned cover crops, anything that you can add to improve it back. And that's originally what nature did. You had organic matter on existing land, bottom land, all that new land that's been transferred from a forest to a field is highly fertile because our organic matter built up over time.

Shane Harris

We've got to add organic matter back of some form to try to improve it over time.

Chip East

When you're in the woods, if the organic matter is there, if it's washing, you know, we're hoping that organic matter leaves and things on the ground is preventing the erosion. But if it's washing you, organic matter is lighter than the clay, so it floats away even on level ground. It's like, well, it's not washing, it's floating away with the rain.

Chip East

Yeah, I highly recommend do not all those leaves and grass clippings. I wouldn't want to pile them on the road for somebody to haul away, I would use them. And of course there's a lot of sources. You can go buy organic matter, but it's expensive. By far, the cheapest thing may be to grow your cover crops, and that that could be another podcast in itself.

Chip East

And the trouble with buying organic matter is it gets expensive quick.

Shane Harris

Sources from homeowner and people, in a certain extent, to a commercial grower or a farmer, would be your leaves that we rake up in the fall. You know, a cover crop like you'd mentioned. Those grass clippings that a lot of people take off out their lawn and then just dump them into the garden area. If you're planning a shrub or starting a new lawn, you can add topsoil.

Shane Harris

You can add organic matter. You can incorporate that, what they call soil amendment into the planting hull, if you're putting out a tree or fruit tree at some point.

Chip East

We can amend that whole I mean, I say the garden spot. But again, if you have enough of it, but it can go. We used to rake leaves and put it in the garden, rake leaves put in the garden all winter long. Then spring we'd plow all that under, again it helps to have equipment, we'd plow that under and that's what we'd plant in.

Shane Harris

And wouldn't last long would it here in Alabama.

Chip East

Well, right again the soil back up to breaking it down. That's that's our trouble. But we're continuously adding because it helps. And we've done things where here cover crops were grown. And it takes years like you say to build soil here they're not grown. And you can tell in the picture when you see the pictures side by side.

Chip East

The soils with organic matter do a lot better than the soils without.

Shane Harris

So we can control that to a certain extent. We can't control the rocks in the ground. We can't control a little bit of the acidity. We can may not be highly fertile, but we can control a little bit the fertility as well. And that's where we then, more seriously, that we say we'll start with a soil test, let's see where we're at first, and then we'll know where to go.

Chip East

Well, just because I see again some elements showing up in a plant that, oh, I think it might be deficient in this or that, it could be more than one element.

Shane Harris

That's a good point because we do a lot with ornamentals. We got a plant that's yellow was the natural response people do they want to add fertilizer to it? But a leaf showing yellow properties the color yellow doesn't always mean it needs fertilizer.

Chip East

It could be nitrogen, it could be iron, it could be grown in the shade. I mean, there's reasons it's not as green as something else. And something else and we're going to talk soil test and today. But you can also do a leaf analysis. And it's basically the same thing is the soil test that they're determining what elements are in the soil.

Chip East

A leaf analysis will tell you what's in the leaf itself. Well, that's the best thing to do. But it is a little more expensive than doing just the soil. I start with the soil and then if I can't figure it out, only move to a leaf analysis. But that's certainly will tell you what elements were lacking in the first place.

Shane Harris

Along that side. You can do that if you're, doing a greenhouse and growing plants, if you're a farmer and have a hayfield, you could do a forage analysis that you can do multiple things. You can take that off an ornamental plant, in the yard. So there's different services that we offer that we can we can tell what you need.

Chip East

It's done a lot with the high dollar crops and the crops I work with pecan and tomatoes and strawberries are to me the top three that I see leaf analysis on a lot.

Shane Harris

Bottom line is don't guess. Let's take the guesswork out. You wouldn't go to the doctor with a symptom or issue if you have a cough or a headache or something like that, and you just randomly take any type of medicine off the shelf, it may not be a serious issue, but a soil test will properly tell you where you're at, what you're currently at, what's your ph is, we're going to talk about what that means and what nutrients that you need to add.

Shane Harris

We've seen saw test results where we didn't need to add any nutrients. There was actually excessive amount of nutrients.

Chip East

Yeah. And again you can't tell by looking you have to do the soil test to see. The nutrition to me that's something we're 100% in charge of. I don't know when it's going to rain. Yeah. I may have to irrigate, there's things it's beyond my control. It's too wet or sometimes too dry and I can't irrigate. It may be the cold's coming in this weekend sometime

Chip East

and that's going to hurt my plant. I'm not in charge of the weather. Things don't we talk about cold a lot, things don't do well when it's over 100 degrees either. You know, we can have issues, but insects, weeds, disease sometimes I'm not in charge of that. And sometimes it comes in and I know, but the nutrition is a process.

Chip East

I can correct that from the start usually.

Shane Harris

That's a good point. A lot of people invest in home lawns, ornamental plantings, even a green fields. We'll talk about that with hunters. Farmers investing in a, in a commercial enterprise of some sort. Take that soil test it's up front. So it's, it's \$10 here in Alabama through Auburn University soil lab. Do that investment first before you put the sod down.

Shane Harris

Do that before you do the ornamental planting or in this case, before you spend a lot of fertilizer on things. You don't need.

Chip East

Money wise, the bigger the area, obviously, the more you can potentially save. I know people that's fertilize the same way all the time, whether they need it or not. Well, we talked him into soil test and we do it. And the farmer said, you saved me. And I tell you what number he told me is a high number.

Chip East

You saved me this amount of money on my fertilizer. Well, I didn't save that. You saved it by doing the soil test and applying the nutrients needed. We know what they need to grow properly, so put on extra doesn't it make them grow properly anymore? Yeah.

Shane Harris

Don't guess. And that means go into the retail stores or wherever you buy your fertilizer. You're just guessing. You just assume that it needs that product because you saw the commercial, you saw it on the shelf or someone recommended it. What is your justification for buying that particular product, especially quantity and and that's the other thing, finding out what particular product that you need, but how much?

Shane Harris

One thing a soil test does is actually tells us quantity. And we're going to talk and talk about the pH of the soil. That's where it needs to begin. But how many bags are fertilizer do you need? You know, you just naturally need 100 pounds or 200 pounds. Again, we're guessing and a lot of cases we're causing more harm than good.

Chip East

People ask me all the time what I recommend. I recommend every element that's needed, and people say what do you mean with it? It's. My neighbor says, hey, you need to put this Epsom salt on the particular plant is Epsom salt good? Well, that's magnesium. And if you need magnesium, yes, that's good. If you don't need magnesium, no that's not you're not going to see big result by putting that out.

Chip East

I don't know until I see the soil test.

Shane Harris

Chip when we talk about soil testing, one of the things that we always look for on a soil test result that most people don't understand is a pH of the soil. Help us to find our listening audience what it means about the pH of the soil.

Chip East

The pH scale is 0 to 14, 7 is neutral, anything below 7, we say, is acidic. Anything above 7 is basic or alkaline is another term you'll see and it depends on the plant. So when I say something I'm going to be wrong sometimes when I make the statement. But usually for a lot of plants, a pH of around 6.1, 6.2, 6.3, 6.4.

Chip East

That's kind of what I'm looking for for my vegetables, azaleas and blueberries, you know, certain plants like a lower P.H. so there are exceptions to the rules. Some plants will do better in a higher pH, but we're looking it around for our vegetables 6.1, 6.2, 6.3 something like that's what we're looking for. More elements, the reason this is more elements or more available for the plant in a pH of around again, 6.1, 6.2, 6.3, something like that.

Chip East

Iron may be more available at a lower pH, but another that's more available a higher it just depends. But that's that hits the best of both worlds. So where we come from I, I've, you know soil tests might come in and it's the pH 4.2. It's pretty low 4.2. Even if I were growing blueberries I'd want to lime that soil.

Chip East

So if it's 4.2 that's a long way from the you know, around five is what I want for blueberries. And 4.2 is awful low. So yeah we'd want to lime that to raise it up. People say what is liming the soil good, well only if you need lime. If my pH was 7 no I wouldn't want to add lime to that.

Chip East

We're good.

Shane Harris

And a lot of people will do that. A natural habit, thinking that I need to adsorb my soils acidic. So I need to raise a P8. So let me add lime. But again without the soil test you can go too far and add too much liming typing materials to raise that pH and b have an excessive amount. So you could go from an acidic soil that's 5 to 7, 7.2.

Chip East

Certain parts of the state in our Black Belt soil their pH are naturally high. It's hard for them to grow blueberries and azaleas, for instance. You don't see a lot of pine trees in certain. Now there's again, there's other plants tree that that will grow in those soils. But for the most part, where we're at in our part of the state, lime is something we do use a lot.

Chip East

And when there's different kinds of lime. But the ag lime we use a lot of is calcitic lime or dolomitic lime and one they both have calcium in, they both have magnesium in it. But in the calcitic lime they might be a little more calcium and the other may have a little more magnesium. It doesn't.

Chip East

I mean, plants need calcium and magnesium. And again, that's something else that you see on the soil test what your calcium and magnesium levels are. And again, when I see I need one of those I'm looking at the pH too. I can raise calcium in or magnesium without liming but if I need to lime I'm taking care of the other at the same time.

Shane Harris

It's already in the bag. So it's a benefit. One common question we get in the spring. And this again, these this podcast is based on a lot of common questions that we've had over the years. The pH becomes a visible as a disorder in tomatoes and blossom end rot. And that's when you have your tomatoes and the, the bottom of it, the bottom of that tomato begins to, to rot, turns black.

Shane Harris

That is 100%, in those cases related to the pH of the soil.

Chip East

Well it's a lack of calcium in the soil. And it's not just tomatoes we can get blossom end rot on tomatoes and peppers and other things. And it doesn't have to be the blossom end. But yeah, usually that's exactly where we see it. That but it's a lack of calcium. And I say maybe in the soil, but it's a like a calcium them in the plant, maybe the calcium in the soil and for whatever stress to dry for instance, it's not taking up the calcium.

Chip East

So it's a lack of calcium in that plant. And that is one of those things where we add calcium to the soil and it may not correct it. Well, we're still under stress for some reason.

Shane Harris

And the pH I describe it as a gatekeeper is controlling the availability of those elements, including the calcium.

Chip East

To be taken up.

Shane Harris

Yes. And so it may be dry to naturally take up water. But we've seen blossom end rot when the ground is too wet, especially in our heavy clay soils. So we always recommend we first look at the pH of the soil, because it dictates and controls the amount of nutrients in the soil. Also, the amount of fertilizer that you're going to purchase and invest in and apply around those plants.

Shane Harris

It doesn't matter what fertilizer you put out, if the pH is not going to allow the plant to get it for us, we recommend that your top priority. The first thing to control and fix is the pH of the soil, because that dictates the availability of nutrients going forward.

Chip East

Correct. We always tell people to fix your pH first. If I don't want a big scale, you may only have enough money to do one or the other. Do the first and then we'll worry about the other element.

Shane Harris

Can I just go to the store and buy one of those meters and that tell me anything. We get that kind of call response. I don't want to spend \$10 on a soil test when I can spend \$2 on one of those little meters at a local retail garden store.

Chip East

I don't have a lot of faith in those meters, so I highly recommend sending your soil to your state lab.

Shane Harris

It'll show you. Make sure if it's acidic or alkaline, it might give you a range from 4 to 5, 5 to 6. But what it doesn't tell you is how much lime to put out. That's the big difference. Do you need 50 pounds of lime? Do you need 500 pounds of lime? Do you need two tons of lime?

Shane Harris

One of the highest soil test I've ever seen one time recommended 4 tons per acre in part of our East Alabama soils. That's a lot.

Chip East

And if I were putting that amount, I'd rather not do all that at one time. I'd pull a couple of tons down and wait a period of time and put some more. It takes time, and it may take a year for the lime to move down through our old clay soils an inch.

Shane Harris

And so let's talk about what is lime. You can buy a dolomitic lime. You can buy powdered lime. You can buy it pelleted lime. It's just ground rock. It's limestone.

Chip East

Very few people have the ability to put that out evenly on a big scale to trucks and wagons. They can do that evenly. But if it's a small garden, I mean, you and I've done it with a shovel, I mean, you can do, but it is. You got to be careful how you pull it out. A drop spreader is one of the best things where the cyclone spreaders it, sling out fertilizer.

Chip East

It does not work with this heavy ground-up rocks. It does not work. Drop spreaders work. But the, the spinners that throw it out does not unless you do the pelletized. Now, pelletized is good. It's just more money. The plant wouldn't care either way. It's fine. But one cost a lot more money than another.

Shane Harris

We take a soil test. Let's take the guesswork out like we've emphasized. Let's check the pH. And that's the first thing that I would recommend is look at the pH and see what range is. And then the soil test will actually make a recommendation only a per acre basis. How much lime you need to apply. We can then as agents can then sort of tell you exactly how much you need.

Shane Harris

Even a little smaller scale, maybe a small garden size or lawn. We can tell you exactly what to do in that regards, but take a soil test. So let's check that pH first.

Chip East

Along with the pH. It's going to tell you a recommendation of nitrogen phosphorus potassium. And we've already talked about magnesium and calcium. But that's what you get on the soil test that that Auburn does. And again doing the soil test we already know what the plants need. That's no front page news. What we don't know is what's already in your soil.

Chip East

And I can talk about nitrogen. We know what nitrogen the plants need and when they can test it in the soil. But nitrogen leaches so fast, it may when you get the result back, it may be wrong so that you wind up getting a result of what the kind of the nutrient uptake of what this plant needs for that.

Chip East

if corn needs 120 pounds of nitrogen or, peas may need 30 pounds of nitrogen, they're going to tell you to put 30 pounds out. The phosphorus in phosphorus stays. I mean we can we if you got your phosphorus at a high level last fall or last summer, it might still be there now. I mean, it wouldn't leave you in all that nitrogen does.

Chip East

Potassium can leach as well, but not as fast as nitrogen. But we look at those numbers. That's what's on the bag of fertilizer nitrogen phosphorus potassium. And those ought in that order. When you say triple 13, a bag of fertilizer, that's 13% nitrogen, 13% phosphorus, 13% potassium in that bag. When you get your results, it'll tell you how many pounds of nitrogen, how many pounds of phosphorus, how many pounds of potassium you need.

Chip East

And we just some simple calculations, to determine how much to put. I will tell you, if you had 100 pounds of triple 13 because it's 13%, you've got 13 pounds of nitrogen, 13 pounds of phosphorus, 13 pounds of potassium in that 100 pounds.

Shane Harris

And so the nitrogen most people may not realize nitrogen is that growth element. That's what helps it green up, that's what helps it grow. And we get a lot of calls and concerns about people putting too much nitrogen out there and certain plants, especially grass. They need lots of nitrogen. They want to grow. So you put them a lot of nitrogen on there.

Shane Harris

But we've had calls where people put too much on tomatoes. And they grow, grow, grow their over head high, but they're not bearing any kind of fruit. So there can be amount of excessive nitrogen on certain plants, some things are like your beans and peas and all that. They produce their own nitrogen, so you may not need to add nitrogen.

Shane Harris

And so that's always a hard recommendation. Well how much do I need. Well a soil test is going to tell you what you need. But also it's based on the type of plant that you are. Bermuda grass has a high requirement of nitrogen. Peas and beans don't need them a lot of lot tomatoes and squash may be sort of in the middle.

Shane Harris

So we can we can help you with that too.

Chip East

Yeah. And you need to know where this is going in the garden if we do our soil test here's our results okay I'm going to go fertilize everything because I'm growing all these crops. But, it might be if you put that high amount out for the corn. But I've also put if I did the whole garden evenly, I'd put that high amount out for my peas.

Chip East

And you're right, they can grow vegetative and we might not be picking many peas. So we've got to separate that out on this area. Don't fertilizers with as much nitrogen on this other area where the corn may go. Or greens take a lot of nitrogen as well. Yeah they can go there.

Shane Harris

The middle number is Chip mentioned like a triple 13 as our example. That's the most common fertilizer used. Sometimes even the excessive the middle part or the middle value. That fertilizer bag is phosphorus. And so that 13% 13% phosphorus, that's described as sort of flower power. And to help those plants, especially our blooming plants, they need a lot of phosphorus.

Chip East

They do. And, and I worry with telling people that sometimes and roots as well. But this is, this is what I get this. Oh, bulbs need that, for instance. Yeah. They do, but I, I've gotten a soil test in, I shouldn't even tell this story, but it was a very, very, very excessive amount of phosphorus in this bulb bed where it was.

Chip East

And I don't know if they could win the rest of their life. They could have used that the soil in that bed as a phosphorus fertilizer, saying it was just off the scale, so high because they heard that was good for blooming. So there they added it.

Shane Harris

And that's the concern with phosphorus because it doesn't move. It stays there a long time. And so if you have a soil test where you've already got phosphorus, there's no need to add any more phosphorus. And that's why you see a lot of fertilizers now that have a middle number, which is a zero. You may have a 15, zero, 15 that's common on that recommended for a centipede, grass fertilizer and the reason behind that is centipede doesn't like a lot of phosphorus.

Shane Harris

It can be excessive. It actually be toxic is what our specialists tell us. So, but people don't want to buy a zero, right?

Chip East

That's right there. See that zero number like, well, I'm paying for this. I want to get something for it. But I look at it like, I don't know much about cooking Shane, but if a recipe called for, I don't know, a half a cup of sugar, I don't, I don't know. And there's already a quarter of a cup in the bowl.

Chip East

Do you add that half a cup and then you got excess or do you. Which I don't know with sugar that might.

Shane Harris

Be I would think of salt. Yeah. But salt. Yeah. A recipe call for teaspoon of salt I put a tablespoon of salt. Now we have an excessive amount. And we're going to we're going to taste that literally right.

Chip East

Whatever the recipe calls for that's what we add. Let's look at it the same way with the soil test. And if they recommend x amount, they know that's what the plant needs. So putting extra for one that can cost you money anyway. But it doesn't necessarily make the plant grow better.

Shane Harris

Chip that third number or a third letter on the bag of fertilizer. In this case, we're using triple 13 as an example for the honest of all, alum is potassium. And our soil test it's going to be represented with the letter K. Potassium helps plants take a water and other nutrients. It helps them transpire and avoid drought stress during hot weather as well as fight diseases.

Chip East

And there's a lot of we call a microelement Shane that we don't even talk about much. But you can get results when you do that leaf analysis if you wanted to go there. But I get this question a lot. Someone would say, what's the most important element? And that's like saying, what's the most important link on this

Chip East

Chain it whichever one is missing, that's the one that's the most important at that point in time. I think whatever we're low in.

Shane Harris

And some of it depends on the crop too. If you know, again, go into our corn and grass, you know, that you've got to put fertilizer out there, you've got to put they've got to have a nitrogen requirement. And so even when we talk about home lawns and thinking that, hey, this grass is going to require a lot of fertilizer, a lot of maintenance, your Bermuda grass has to be fertilized.

Shane Harris

That's also athletic fields where something else may not need is high requirement.

Chip East

Well, if it's my home lawn and you want it, I mean, like with centipede, it doesn't have a really deep color even. It just doesn't like the nitrogen, but it doesn't have a deep, deep. It's pretty, but it doesn't have a deep, deep green like for instance, Bermuda grass does. It doesn't require the nitrogen fertilizer, an athletic field.

Chip East

It's got to recover from a football game, maybe. And it's messed up there's places that would knock the soil up anyway. It's got to recover and grow. It gets beat down all the time. So we put a lot of fertilizer on it, especially nitrogen fertilizer. And it recovers a lot of home lawns people put iron and that's in a lot of fertilizer bags.

Chip East

Is iron. It'll give it a green color without making it grow. Well, at my house, I might not want it to grow because I'm not trying to fill in where a Friday Night Football game, you know, did some damage.

Shane Harris

You see these different crops, different plants in different situations. You have specialty fertilizers. We mentioned a triple 13. We mentioned the 15 zero 15. And that's typically marketed a lot of times for centipede grass because it did like that phosphorus. But then you see certain ones that for tomatoes you see one for flowering plants, you see some for just a general purpose, indoor plants, potted plants, camellias, azaleas and all that.

Shane Harris

And that's still sort of guesswork because we've not taken a soil test to justify it, but they're a little bit more formulated for those particular plants.

Chip East

You're right. So a lot of people say, oh, this is specifically designed for tomatoes or, well, if I don't need the phosphorus and it has a high level of phosphorus, then that's really not what I need. Even though I'm growing tomatoes now, in the case of blueberry and Azalea, years ago, we could get for the nitrogen source. You know that that first number, nitrogen, for instance, it yes, that's the percent in there.

Chip East

But you can get nitrogen from different sources. Well, years ago it was common to have, ammonium nitrate was the nitrogen and yeah, that's 34% nitrogen, but ammonium nitrate. What? A lot of plants don't like that nitrate form in blueberries and azaleas is an example of it. They like ammonia sulfate or urea is another nitrogen source.

Chip East

Well, for those bags, fertilizer specifically designed for azaleas or blueberries, they used urea as the nitrogen source or ammonia sulfate. So it still was whatever percent. But it was from a different source. Well, now you're seeing urea and ammonia sulfate in a lot of things, especially urea in a lot of things. And you're not seeing as much ammonium nitrate anymore.

Chip East

And that was true. Many years ago. As far as the why, it was specific, hey, we need to get this specifically designed for this crop. But because of the nitrogen source, it's not as important now as it was years ago.

Shane Harris

So you got to have there's a balance between convenience and then what actually what you need. Because a lot of soil tests that we recommend you can't buy that particular amount of fertilizer or that particular blend of fertilizer. You have to make it about two different kinds.

Chip East

When you get triple 13. Again, it's even amounts, in this case 13% nitrogen, phosphorus and potassium. So if you've got 100 pounds, you're getting 13 pounds of nitrogen, phosphorus and potassium. But what if you needed less, for instance, of either one of those? You're right, you can get the 15 zero 15. What if you just needed nitrogen by just nitrogen?

Chip East

I when putting stuff out on clover. We don't need the nitrogen. Maybe we just need the phosphorus in the potassium. It's possible that I have to buy 2 or 3 different fertilizers and put X amount in. And there's simple ways to calculate. I mean, we, we have that on our website, but any extension office can help you with that.

Chip East

But we can tell you how much to put per acre. It doesn't matter if it's you know, I can tell you per square foot, I just need to know how big of a spot you have, and we'll calculate it for you. It's not a problem.

Shane Harris

Chip. Something that we've learned from day one. Take a soil test. Take a soil test. How do you take a soil test? Where do you get a soil test what do you do with it when you get it?

Chip East

Good questions. And you can go to any your local extension office wherever you live.

Shane Harris

And that's even nationwide.

Chip East

Nationwide. Yeah. And they'll have a container to put soil in, in a form to fill out. We do in this state anyway. And you'll go to and I don't know if your gardener, hayfield or food plot or turf grass, I don't wherever you're testing, and you'll get samples of soil and put in a container. So we call those subsamples, but you'll go to 15 or 20 places, the more the better if you just go to one spot.

Chip East

If for whatever reason, we spilled a bag of fertilizer for what it's if it's if that one spot represents your whole yard, I guess that's fine. But I don't know if that one spot is representative of your whole yard. So I like to go to 15 or 20 places, get soil. We call them subsamples, but soil is deep is the roots you're going to grow.

Chip East

So I can almost say 2 to 4in. But if it's plowed ground, I go down as deep as we plow, like fits in a garden. So I put these subsamples in a bucket or some kind of container. And after I gather them all, I mix them all up and then, sample one sample from there goes in the container you get from the extension office, a box or a bag, and then there's a form you fill out and the form is going to ask you crops to be grown.

Chip East

Well, if it's my home lawn, in a way I really don't like to put home lawn, I really want to be specific because Bermuda grass needs something different than centipede, for instance. So write centipede grass or Bermuda grass. And I'd put Bermuda grass alone, if that's what I'm growing. If it's a pasture, I'd put Bermuda grass pasture, if it's a hayfield, Bermuda grass, hay field, whatever I'm doing with that's what I want to write down.

Chip East

If it's a vegetable garden in a way I really don't want you to put vegetable garden. I want you to put peas, beans, squash, corn, the actual crops you're growing because, again, these different crops, some of them require the same nutrients, but a lot of them are different. So be specific in crops to be grown. And that'll be written on the container that the sample goes in.

Chip East

And on that information sheet.

Shane Harris

We recommend doing separating the samples. If you have a lawn, fruit orchard, pasture greenfield, even a fish pond, you can take a sort of a fish pond and you get more specific versus doing my whole yard. And I've got multiple things growing in there and shrubs, flowers, lawn, trees. The more samples you take when it comes to that large sample that you're turning in the lab, the more accurate it's going to be.

Shane Harris

And that way you have a blend. Plus, you're for the history of that piece of property of those plants. You've been managing them differently anyway. So you've been putting different fertilizer nutrients on them versus the pasture. The green field, the flower bed or whatever. You're managing a different anyway. So the more soil test you take, the more accurate it will be for those specialized areas, but also label that what it is.

Shane Harris

Is it the backyard? Is it the fish pond? Is it the pecan orchard? Is it the back 40? Where is it? The so-and-so's hayfield. It's it paws paws garden. You know, label that very specific because when you take a lot of soil test, then you know specifically what area this was taken from.

Chip East

If, if we have a 100 acre field and it don't matter if it's a very small area, if there's different soil types. I want to do, collect samples from this area that's in this clay soil. And if I got a sandier soil somewhere else, or if this is in the bottom land and that over there's on a hill, I might want to know.

Chip East

I'm collecting several subsamples to mix to get in this bottom area. Then I'll click several subsamples on that hill, and I'll submit those separately. If I've got a big field, I may divide that out into ten acre plots and take samples from this ten acres and those ten acres and these ten, you see what I mean? And then when I get my results back in, you're right about that.

Chip East

We better know. Area 1234 ABCd. We got to remember where we get these samples from. So I would spell it out. Yeah. This is the vegetable garden. This is the hayfield or whatever.

Shane Harris

Especially if it's new ground. If you're putting in a brand new lawn, brand new construction home, you have no history. You need to take a small test to see where we're starting from. If it's new, a new greenfield, take a soil test. Let's see where we're at and where we need to go. So label those very specifically here in the state of Alabama, the soils lab through Auburn University processes, those the current rate is \$10.

Shane Harris

And so you can take as many samples that you want excess of those different crops, especially if it's not doing well or if it is doing well, let's, let's see where we're at. We're trying to take all this guesswork out because for \$10, you're you may not need any fertilizer. You probably you may or may not in any lime, but just don't spend a lot of money, a lot of labor in something we definitely don't need that actually can cause a lot of harm.

Chip East

Shane. When we're buying seeds, buying fertilizer we're planting, we might grow our own transplants. We got time and money in it. We set these at, we're hand pulling weeds hoe and the time invested before we even pick something. And if \$10 will tell me what kind of fertilizer to put in production in some cases double in some cases more than that.

Chip East

I think it you definitely worth spending the money because you're, you're definitely spending the time and money on the other end. So better be productive.

Shane Harris

Home lawn specifically, if you're investing in a lot of sod the prep work. Spend \$10. And let's put the lime down. Let's know what the appropriate nutrients that the lawn needs. Let's don't spend thousands and thousands of dollars on a lawn, or new landscape, or a greenfield, or even a new farming enterprise, and not spend \$10 to see where we need to start.

Shane Harris

That's a good investment. It all starts with the soil.

Chip East

Absolutely.

Shane Harris

If you're interested in taking a soil test with us, a lot of our feed and seed stores across the state of Alabama, probably every extension office will have the soil test kits. You can pick those up, if you live in the county and you want to know where the shortest kits are available, how to get them back to somewhere.

Shane Harris

If you need a mail them deliver them to an office, give your local county extension office a call and they can provide that information. Chip it all starts with the soil. And we've really literally dug deep in soil today. In our *Southern Ground* podcast. This is a this is a big class on soils when we teach soils and Master Gardener and other talks.

Shane Harris

This soil's is a is a big topic because everything is based on the soil for to be successful down the road.

Chip East

Absolutely. And hard to cover everything in one podcast. So, if we leave anything out, you got additional questions? Just give us a call at your local extension office.

Shane Harris

Chip, always good to see you. And, appreciate your information and your advice in this podcast today.

Chip East

You too. Shane. We'll see you next time.

Shane Harris

Thanks for listening to *Southern Ground*.

Announcer

Southern Ground has been a production of Alabama Extension at Auburn University.