



## Nutrient Dense Soil

### Transcript – Module 2

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Hey, Tom Bartels from GrowFoodWell.com with module two of the soil certification workshop. Welcome and today we're going to be talking about soil tests for the most part. We're going to talk about why you might want to take one in your gardens, what it can tell you, what to expect in the process and how it can help you get a baseline understanding of what's going on in your soil. Now I should mention that one of the primary steps of taking a soil sample is to go ahead and order one first. They'll send you, in many cases, a collection kit with their own bags for collecting the sample. They'll send you a questionnaire of paperwork to fill out and basically the more accurate you can be with those questions, the better off you're going to be as far as understanding the baseline of what's in your soil.

I'm going to show you the basic steps involved in taking a soil test in your own garden and we'll give you links to different soil testing organizations. And you can also find your own by just looking through the extension office in your area and they can usually hook you up with a local soil testing facility. Now first let's talk about why you would need a soil test. In certain situations, when you're trying to find out if any particular area of soil is appropriate for growing foods specifically, you want to make sure, A: that it's safe. The time when you might want to test for chemistry in the sense of toxic chemicals, heavy metals, that sort of thing would be in urban or industrial situations or really close to an old building where you may have led paint that came off historically 50 years ago and is still in the soil, or you're really, next, you're close by to an industrial facility.

In those situations, you may want specific tests to look for heavy metals and those type of things, but we're not going to go into that today. And we're going to be talking about general chemistry tests on soil for garden vegetables, flowers, fruit trees, that sort of thing. If you're just digging in your backyard and you know basically the history of that area, that soil, or if you're taking over an old dormant garden or something where you think it's pretty safe, you probably don't have to test for each type of synthetic chemical or a heavy metal substance. Now, you don't want to be lazy about the soil test. You want to take your time, do it correctly, because you want to get an accurate picture of your particular soil. Now I can tell you a couple of ways that people make mistakes on soil tests.

The easiest one is to use dirty implements or mix the soil sample with non-resident soil or some other material that then gets mixed up with a soil sample and gives you a skewed view of what the actual chemistry is, so to avoid that, we're going to take a random sample in this particular bed right here. As you can see, I've got multiple beds here. They've all been growing different things for the past 18 years or so. But you may have a similar situation or maybe this is all one bed, but what you don't wanna do is take one big sample from one bed and send it in because you'll get an example that's coming from one particular area, but it's not representative of your entire growing area. So it's different for farms as it is for gardens, but you generally, if you're trying to figure out what this soil and this general growing area is doing, you want to get random samples from about five to eight locations around this garden.

So, I'll be taking random samples from different beds here, combining them, and then we'll show you what to do with the sample after that. If on the other hand you have very different soils in different growing areas at your place, then you might want to test those different soils separately and you can just send in multiple samples to figure out what's going on. But if you're just trying to get a baseline for one growing area, this is how you take that soil test and you're only gonna need a couple of things. You'll need a clean plastic bucket. You don't want a galvanized metal bucket because that'll change the chemistry as the soil comes in contact with that galvanized metal. Again, it's all about accuracy here. So,

you're going to need a clean trowel and that bucket and what you're going to do, I'll do this right here, right in front of you so you can see what I'm doing first.

So, what you want to do is make sure to remove any compost or mulch that might be on top of that soil. That's the first thing you want to do is clear that off, because again, that'll give a non-representative sample with too much compost in it because that's just a mulch material. So, I get just to the top of the soil, so I've got a clean reference point to start with and now I'm going to take that trowel and I'm going to go straight down about six inches, okay? And in this case, we've got spring soil where the snow just melted here. This is a little wet, but that's okay. And I'm gonna circle that around and go six inches down and go ahead and pull up that sample. Okay, so that's the first sample that I've got, and I'm going to take that right and put it right in the bucket. Easy enough, right? So now let's repeat that in five other locations. And you want them in random places. You don't want to go to one certain area that's always wet or this next to some other compost pile or something that would skew the results. So, you want to go scrape off any compost or mulch once again.

Okay, so now that I have in my case, six different samples in here, you want to mix them together. Just take your trowel, mix them up. So, now you're kind of getting a general overview of the mixed samples and it's giving you a more representative example of what's happening in that garden and you want to break up any clods, any big clods of soil, and take out any rocks, any big rocks. You know, if you've got a big rock in there, just take it out the sample, toss it aside. And of course, I always end up with a bunch of worms in here. You want to take the worms out before you send the sample in. Just chuck them back in the garden. That soil is now relatively broken up. It's more granular. It's pretty good soil. I have a clay loam that's a pretty nice garden as well by now, after 18 years of amending it with compost.

At any rate, now we're going to take this. We're going to take this bucket of soil and we're going to spread it out on newspapers to dry overnight. You don't want to put it in the oven because that excessive heat will also skew the chemistry. You just want to let it dry by itself overnight on newspapers. So, let's talk about pH for a second. What is it and why does it make a difference? Now the pH value of any substance is basically the amount of acidity or alkalinity of that material. Now it's measured on a scale of zero to 14 based on the hydrogen ion concentration where 7.0 is neutral. Zero is the most acidic and 14 is the most alkaline. Most garden soils roughly fall between a pH value of 4.0 and 8.0. If you have a high or low pH, it doesn't mean you can't grow things there, it just means you will know how close you are to the sweet spot for growing vegetables, which people tend to agree is a pH of about 6.5. Plant nutrients and minerals become more and less available depending on the pH of the soil, even if your pH level isn't perfect, it's not right at 6.5, it can be more acidic or more alkaline, you can still grow vegetables, especially if you use organic compost and a little bit of rock flour and we'll talk about amendments in the next module. So, I wouldn't sweat the pH too much.

Soil tests are typically taken in the spring or in the fall, so if you're going to be comparing your soil tests from year to year, just make sure you take the test the same time of year that you did the year before because the spring soil is going to be different than the autumn soil because of what's grown in it and whether it's a heavy nitrogen feeder or what happens in that bed during the season. So, you can test in the fall or in the spring. Just make sure if you're doing multiple years, it's done during the same season. Now you don't have to take a soil test. You can go ahead and plant away if you think you have good soil and it's growing reasonably well. You don't have to become a biochemist and do all the hard work about figuring out the chemistry and the pH and the NPK levels, but you also don't want to be throwing a bunch of esoteric amendments on your beds without knowing what's there to begin with. You don't want to just look on the internet and say, "Oh, Epsom salts are the key. Let's just dump a bunch of Epsom salts or lime or sulfur on my beds," when you don't know what's there to begin with, right?

You need a baseline to understand what needs to be adjusted to create a balanced pH or a balanced profile in your soil so that everything grows well. That peace of mind and that understanding can come from the results of a soil test that shows you not only what the NPK levels are, but all the micronutrients, the pH; there's lots of things that are in the soil test that can give you a baseline for amending your soil to get a balanced, growing medium. So, here I'm just gonna pour out that sample right onto the newspaper and this is more than we need for a soil sample, which is pretty typical. Once

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you blend everything together, you end up most of the time with more than you're going to need for the actual sample. And what I do is I spread it around the entire newspaper, and again, we're trying to make sure it's relatively untouched from other materials. Newspaper won't add much to it chemically, so it's a safe bet or plastic if you've got some plastic to put down. You just don't want to mix it with other soils or something else that'll skew the test. I see a few rocks in there, take those out. So now I'm going to let that dry overnight and it's going to get a lot drier than this. You don't want to be sending them a bunch of water weight. They don't want mud. So, if it takes a little longer to dry, so be it.

You can let it go a day or two, but it should be dry to the touch and just granular soil. Now, you also want to label your sample package, whether it's one they send you with the kit or if it's just a Ziploc that you've got on your own. I typically use a Ziploc just cause they're easy and they work. Make sure that you label it with your name and what beds you're testing in case you're testing multiple beds. It's really important because once that's labeled or if it's not labeled, you can't figure out where that came from and then the whole issue of taking the test in the first place is moot. Let's say this is the next day and this is all dry. Each testing facility will tell you how much soil to send them for the test. Maybe it's going to be a cup's worth or a pint or a quart.

But either way, you'll take that amount that they require for their testing and you'll be putting it in that well-marked bag. It's from that particular bed with your name on it, and they'll remind you, or they'll have a soil sample kit that'll have the spaces to fill out the information on each one and then there's your soil sample. So, this would be mine from the west beds and I would send it in just like that. And it's gonna come with some paperwork that you send in with the test. And then it takes typically two to four weeks to get your results back from your soil test. It's usually busier in the spring because they have more people sending in tests during the spring. So you might ask your soil facility when you send it in, what their turnaround time is, and they'll give you a general indication, but it's typically two to four weeks and then when you get that information back, it's really gonna help you get a baseline and understand what your soil is, what it's lacking, what it has enough of so you can do some really good, reasonable amendments to bring it to the most optimal balance for growing whatever it is you want to grow. And we'll be talking about amendments for your soil and what they can do to improve your gardening in module three. But don't forget the quiz in module two and we'll see you later.