Season 2 Episode 1 – Plant Problems Diagnosis

March 14, 2024

Announcer:

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

Brian Brown:

Thanks for joining us this week. My guest today is Dr. Jim Jacobi. He is extension specialist in plant Pathology, is located at the plant diagnostic lab at the Birmingham Botanical Gardens. He's a frequently sought out speaker and has extensive knowledge of all things plant related. So welcome, Dr. Jacobi.

Jim Jacobi:

Hey, thank you for asking me to be on the program. Yeah.

Brian Brown:

So, tell our listeners a little bit of what you do.

Jim Jacobi:

So, my my job as a plant pathologist in running the diagnostic lab, you know, it's it's really trying to help clients diagnose their plant problems so people can bring in samples, we can diagnose it and tell them, you know what, the next step is that they can take to to solve the problem.

Brian Brown:

So how many samples do you usually get?

Jim Jacobi:

You know, it runs the gamut. But most years we get about a thousand, 1200, 1300 samples a year.

Brian Brown:

So, you stay pretty busy.

Jim Jacobi:

Yeah, we do.

Brian Brown:

Yeah. So what? What got you into plant pathology? How did you get to this point?

Jim Jacobi:

So, I had my- I was studying forestry as an undergraduate, and I took a class in forest pathology. And that really part sparked my interest in, in pathology. That led to getting a master's in forest pathology and then finally a Ph.D. in plant pathology. So that just that there was something about pathology and trying to that unknown, you know, not knowing exactly what might be wrong with a tree or a plant, you know, in the microbe interaction with the plants really sparked my interest.

Brian Brown:

So, as trees, your kind of your niche?

Jim Jacobi:

Tree trees are my first love as far as a plant goes. I've always been, I always loved to be in the forest, loved trees. And so still today, you know that's one plant that I really like to look at.

Brian Brown:

Yeah. So, you're a certified arborist also, right?

Jim Jacobi:

I am. Yep. So? So, it's you know, I've done a lot of things from, you know, working more on the forestry side and then working in urban landscapes and in that sort of thing towards the end of my career. And yeah, it's, many things related to trees. So as far as like an arborist, you know, that that just gives another part of the puzzle for me to help out folks with their tree problems.

Jim Jacobi:

So, you know, I can go out and look at a tree because that really gives me a better understanding, not just them bringing in a physical plant sample, but actually seeing the tree out in the landscape and then seeing what's around it, you know, seeing the whole picture, you know. And nowadays people can send me pictures of the trees and things like that. And that helps out tremendously. But you can't, there's no… nothing that you can do that substitutes for actually seeing the plant out in the in the landscape.

Brian Brown:

Yeah. I've getting a lot of pictures myself trying to diagnose things and I'm always trying to be clear. You need a lot of pictures here, not just a picture of a leaf. So, I get that a whole lot.

Jim Jacobi:

Yeah. Then it sometimes it's interesting. Pictures can help tremendously, but in some cases, I'll go out and I'll realize that we're dealing with some other problem. And, you know, it wasn't apparent in the pictures or sometimes the pictures can kind of lead you astray a little bit.

Brian Brown:

So, what are some of the most common things you see coming into the lab?

Jim Jacobi:

You know, probably the first thing and related to any tree and shrub or plant in the landscape or in the garden or anything else, if people see spots on leaves. It could be something like any leaf spot on any particular plant, you know, branches that are dying back, leaf you know, powdery mildew. And some of the more common things, you know, things like that.

Brian Brown:

So, is it mainly from homeowners or you get a lot of samples from farmers and people who produce things too?

Jim Jacobi:

You know, most of the samples that come into the lab probably about, you know, depending on the year, 60 to 70% come directly from homeowners. And since we're located at such a public facility that kind of draws people in, you know. Then the other, you know, 20 to 30% is primarily from landscape professionals. So that could be arborists, that could be lawn care companies, landscape maintenance companies, you know, that whole gamut of the green industry kind of professionals.

Jim Jacobi:

You know, a certain segment, you know, I get samples from golf courses and other things like that. In addition to that, farmers and kind of that portion is relatively low. You know, it's less than 5%. And most of those typically would be vegetable type problems more than anything else.

Brian Brown:

So, you get more landscapes things than you do.

Jim Jacobi:

Yeah, by far, you know, landscape things are 95% of what we do. And, you know, that's my niche. That's, that's really where my experience and expertise really is because, you know, plant pathology or just diagnosing plant problems is a very wide, you know, area. And, you know, I'm a plant pathology specialist, but in my position over the years, I've had to pick up and understand, you know, all the common other pests and other things like that, all the weeds that that people may encounter in their landscapes to become a better, well-rounded, you know, diagnostician and helpful.

Brian Brown:

I think one of the things I've learned in the short time I've been here is I'm always learning something new, so I can totally relate to that and understand where you're coming from because, you know, I love landscape plants. That's what my training was in. But I've had to learn a lot on the vegetable and fruit side.

Jim Jacobi:

You know, it's always helpful to kind of step out of your comfort zone a little bit. And, you know, there's this job has been, you know, over the last 20 plus years has been just such a perfect, you know, avenue to really learn and grow.

Brian Brown:

So, what's some of the most unusual things you've seen? I'm sure you have a lot of stories, but yeah, anything that really stands out over the years?

Jim Jacobi:

You know, there's always a lot of new things that show up in some of the unusual things that people bring in. You know, I really, you know, I've seen a lot of things and I see a lot of the common stuff again and again every year. When I see something new that really sparks my interest. And I can't point to a specific thing.

But, you know, like the first time that that we had hemlock wooly adelgid, you know, here in the state or the first time that we diagnosed boxwood blight was, you know, when I got the first sample of that. You know, those are the things that really keep me going and keep me interested in those new things.

You would think that after, you know, a long career, I would have seen everything. But that's not the case. Even some of the more common things that kind of sometimes I'll see things that I haven't seen before. And that's the fun part of it.

Brian Brown:

So, it's not just plant diseases that you cover. You cover insects as well.

Jim Jacobi:

Oh yeah. You know, so it's anything that gets brought into the lab, you know, we try to help and diagnose. You know, we utilize other Extension professionals on campus to help us out if we need help in diagnosing a plant problem. But over the years, I've become a lot more, you know, entomology was kind of my second choice, you know, as I was going into graduate school. Plant pathology was kind of the first choice and entomology was a second you know, I have interests in both areas.

Brian Brown:

I remember when I interviewed for this position, I think you were on the committee. I could be wrong, but I think you were. One of the questions was what was a disease? You had a picture of disease, and it was a dog vomit slime mold. And I thought that I knew what it was caused from, but I didn't know the name. And that was something new for me, knowing the name at least. So that was a that was a fun one. It's always a fun name for us plant people.

Jim Jacobi:

That's one that I you know, when I teach classes or master gardeners, that's one that I'll introduce. It kind of, you know, throws people and gets them back interested in seeing these things.

Brian Brown:

Well, it's a very descriptive name, so...

Jim Jacobi:

Definitely a very descriptive name. And it's also one of those things- it's great when you can show somebody something that it looks terrible. It looks like it's going to just be devastating to the plants or whatever they're around. But it's benign, you know, it just has no impact on the plant. It's nothing to worry about. And it's great when we can kind of educate folks into, okay, these are the things you need to worry about. This thing over here that you see that looks bad really isn't.

Brian Brown:

I think another one that we had corresponded with is the wolf… spider wolf milk, is that right?

Jim Jacobi:

Yeah, there was a yeah, there was a fruiting bodies of this little fungus t that I can't remember exactly. But I remember those. I can remember the picture that you sent me. Right. And it's, it's, you know, those are the fun little things to learn.

Brian Brown:

I think with the you have so many plant diseases and things, you probably run out of names to name them. Right.

Jim Jacobi:

You do. And it's sometimes we're stuck with some names that we don't always like. You know, they just they just kind of hang.

Brian Brown:

Right. Is there anything out there that you see as like a coming threat on the horizon that we've seen? I saw a report a couple of weeks ago, or this week, of the Lanternfly. Yeah, I know. That's one that's coming. Is there anything else? Is that the biggest threat that's out there?

Jim Jacobi:

There's always threats out there and a lot of times it's the things that we don't really know about. You know, those are the things that pop up and really cause problems. You know, Spotted Lanternfly is one that we're definitely watching it. It's creeping this way, kind of like Hemlock Wooly adelgid did you know, it'd been up you know, I'd worked up in the Northeast and seen it years and years ago, back in the 1980s.

And it's kind of interesting how these things- some things move really fast. Some things move relatively slow. Emerald ash borer is another one that we faced relatively recently coming into the state. But there's always new things. Beech leaf disease is one that's kind of out there, up in the Northeast. Again, this is actually in the last few years they've learned that it's a nematode that's attacking the leaves and causing this problem.

Beeches aren't a really big component of you know, our in Alabama as far as in landscapes, you know but they're around, and you know you probably more than people think about but that's one that that we're also watching. So, there's always new stuff that's coming in. You know it's always important for when people see new things, you know, something you've not hadn't seen before.

Or maybe there's a news report, you know, be on the lookout for these things because, you know, homeowners and master gardeners and all these people are you know, that's another detector, you know, person that can help us, you know, find out where these things are.

Brian Brown:

So how can a homeowner help in those situations?

Jim Jacobi:

You know, it's getting in touch with your local county agent or, you know, and they can bring that to our attention or directly to the lab, if that can also work in a lot of cases. You know, if you see something new, send us a text, send us an email so that we know about it. If we need to get samples of it, then we can do that and then we can confirm if there is something that, you know, that's new that we need to know about.

But it's, you know, those cases like when we first got boxwood blight into the area, you know, that was really an awareness. And you know, it's, you know, learning about it early, learning how to deal with it. A lot of times it takes a while to kind of come up with some of these new things, how we're going to manage it.

In some cases, we do. We come up with some great ways to manage it, other cases which it's really hard to stop some of these new things.

Brian Brown:

Related to that, I know we had the big freezes last year and we had a lot of damage from that. Does that cause any secondary things or?

Jim Jacobi:

You know, that's a lot of what I've been dealing with this summer. So, we had a lot of plants that were damaged during either the freeze back right after right before Christmas or the one in March. There was another freeze event that we had just as a lot of plants were coming out. And we've seen some secondary things related to that.

Probably the plant that I've been dealing with, the most as far as numbers of samples, have been boxwood. And so, they've had some secondary things. They got the initial damage and that opened up the plant for these opportunistic fungi to move in, you know, different things, volutella blight and some of the other things that will move in on those weakened plants.

You know, it's hard to kind of convince people that some of the things, even plants that look good and then, as you know, the summertime heat started on some of these damaged plants, you know, some plants not necessarily because of a secondary, you know, disease, but they because of damage to [it] initially. You know, when they came under stress or just regular summer stress, they had problems. And it all goes back to that, something happened, you know, six months ago.

Brian Brown:

I think that's the biggest thing that I struggle with myself is recognizing what is a primary versus a secondary infection.

Jim Jacobi:

So, yeah, and that's true with a lot of things that we see in the landscape. You know, a lot of these things, even some of the diseases that we see are much more prevalent on plants that are stressed or weakened in some way. So just even all of the things that we do as homeowners and, you know, taking care of the plants, you know, some of these things can have adverse effects.

Brian Brown:

I know right now we're going through a little bit of a drought (we're recording this in the fall,) so are we probably going to see some secondary damage or is it mainly just you know, it's it's not severe drought, I don't think yet. Right. But is that something that we may see, even though October is our driest month.

Jim Jacobi:

You know, some of these things definitely have an impact and they put stress on plants. You know, in some cases we'll get some secondary diseases related to that kind of similar to what we've seen after the cold damage. And it may be months, you know, maybe next summer before we really see the all the full effect of it.

Brian Brown:

I guess it was a few years ago we had a really severe drought, and I was living in Auburn at the time, and I remember I think we went from August to October with trace rain and a lot of the trees were exhibiting damage a long time afterwards, right?

Jim Jacobi:

Yeah, Yeah. So, it's you know, some of these things have severe damage, you know, damage to the root system, dead roots. You know, a lot of times you'll get, you know, certain diseases that can follow that. And in those weakened plants can really set them up for, you know, the tree may not die for two or three years.

And, you know, some of that tipping point might have been that severe drought that they had, you know, a few years ago. And, you know, with some of these diseases of plants, especially big ones like trees, you know, it takes a while for the tree to really decline enough. And, you know, there's what we call in, you know, arboriculture about what we call the decline spiral.

And so, you'll have a predisposing factor kind of like a drought. And then a few years later, you may have an insect infestation, or you may have a disease like armillaria root rot that attacks that particular oak tree. And it causes just kind of this slowly going down the drain, you know, dieback and other things as that tree, you know, starts to succumb to the combination of these things.

And that's another thing that I often see is that, you know, people really want it to be maybe just one thing going on with that particular plant. But a lot of times it's a complex of multiple things and it's not always a simple answer as far as, okay, we kill this bug and the plants can recover and do great. There might be multiple things going on. It's you know, kind of a puzzle to figure it out.

Brian Brown:

So, it's really identifying not a singular cause of something, but it may be multiple factors and.

Jim Jacobi:

Right.

Brian Brown:

It just and you know, that's what makes it more complex.

Jim Jacobi:

It does. And you may just be able to treat the some of the later symptoms that you're seeing and treat those things, so we don't have additional damage to the plant. But in some cases, especially with trees, we'll get into the point where, you know, it's the damage is too severe that the plant has had so much branch dieback and other things that it can't really support itself anymore. And it's just too far gone.

Brian Brown:

So, segueing into this next question, what are some practical tips for homeowners? So obviously, keeping your plant healthy is probably number one.

Jim Jacobi:

Yeah. I mean.

Brian Brown:

What can a homeowner do?

Jim Jacobi:

You know, doing the basics as far as, you know, learning what's recommended for that particular plant. The, you know, doing your background information before you put the plants in, doing a soil test, doing those basic agronomic, horticultural type things. Putting a new lawn in, doing those basic things like soil test again, and then making sure you're doing the right… following the fertility recommendations and watering and things like that.

You know a lot of things that we see in landscapes, you know, some of those things go back to, you know, proper planting procedures. Right. Okay. And you know, whether it's a tree or shrub, we may not see problems for three or four or five years, but it goes back to how that plant was installed and then that aftercare in that six months to a year or longer, you know, So it's, it's so important to do the basics. And if we do that, we'll have less problems.

And also, you know, there's a lot of things that we can do beforehand when we're choosing plants, you know, choose the recommended plants for the area, choose the recommended- if there's certain varieties that are recommended and do better, maybe they have less disease problems, less insect problems- choosing those so we don't have problems down the line.

And then when things show up, you know, getting help. You know, going to your local county office to find out if they can help you diagnose a problem. Definitely, if they can't help, you know, we can get samples and you can bring in or send in samples to us and we can help because it's so important to diagnose it right. And not get led astray. You know, not start using the wrong kind of treatment that's not helping and wasting money and things like that.

Brian Brown:

And there's other things, too, like watching the weather. You know, a lot of diseases when we- especially when we get hot and humid- we see an explosion of fungal diseases, right?

Jim Jacobi:

We do. We do. Yeah.

Brian Brown:

So, what's some conditions that they can watch out for as a preemptive like, okay, it's hot and humid. What's some things I need to do now to protect my plants?

Jim Jacobi:

Well, there's certain things, especially things that you see every year. If you have a plant, let's say, you know, your big leaf hydrangeas and every year they seem to get, start to get leaf spots and other things going on with them. Well, a lot of times that coincides with the kind of the summer thunderstorm rainfall that we typically have or humid conditions and, you know, doing the sanitation and the clean-up. You know, a lot of those leaf spots we can try to control just by cleaning up all the leaves at the end of the year after the leaves fall off because of these fungi overwinter, especially that type of fungus that that causes leaf spots, on whatever plant we're dealing with.

You know, picking up those leaves gets rid of the source of the fungus for next year. So we can really cut back on kind of our, how much disease potentially we're going to have. And then, you know, there are certain recommended fungicides that if you have that plant that always gets damaged by that, we know that seems like every year just about Memorial Day or June 1st, we start to see spots.

Well before that, if you've done your prep and done your sanitation last year, you probably have less. But you know, that's the time period. It's easiest with fungal diseases to treat them when we first see them, because I'll get a lot of samples in in August or September of plants that have had these spots kind of building up over the season.

And by September, there's really not much that we can do, you know, other than tell them, you know, because it's really almost too late to spray and really have any effect. So doing the you know, picking up the leaves, doing that kind of sanitation, reducing your watering so you're not making things worse. You know, if you have an overhead sprinkler system, you know, irrigation system, you know, using that at the right time of day and doing those kinds of things to reduce the possibility of getting disease.

Brian Brown:

If someone has a plant and they've already called their Extension agent, what's the next step? If the Extension has no clue what to do, how do they send a sample to you?

Jim Jacobi:

So, there's a couple of things. So, they can get us a sample and a lot of times, you know, it's it might be best to start out with some pictures of the plant and, you know, the regional Extension agent can send us the pictures that you might have shared with them. And that can give us a better idea of what kind of samples we need and how much we need, because it's a lot of times it's more, you know, getting the right sample is so important.

Probably during the year-- I was thinking the other day that there's probably 25, 30% of the samples that I get that just aren't really enough to for me to diagnose a problem. So, you know, getting the right sample upfront, you know. It's pretty easy with the leaf spot, you know, getting ten or 12 leaves, kind of showing the range of what you're seeing. And putting those in a plastic bag and either bringing them or sending them to the lab.

And we have a form that you can fill out. It has a lot of background information, and yet there's a lot of questions on there. You know, like when did you first see it? How long has a plant been in the ground? Where are you seeing the spots? You know, those types of things that really help us out.

So, I read those submission forms and they're very helpful. If I see a big blank with nothing on there, I'm missing part of the puzzle. And so, it's it's so important to get as much information because the better sample, the more information we can have, the better diagnosis and the better outcome.

Brian Brown:

And one of the things you taught us as Extension agents is when you mail the sample, if you mail it, right?

Jim Jacobi:

Yeah. So, mail those samples at the beginning of the week. Monday, that's the best day. You always don't know if you know, we want a sample to get there that week. We'd rather, especially in the summertime, don't mail it Thursday, Friday, even Wednesday. This is kind of iffy sometimes because we don't want it sitting four or five days in the mail and ending up, you know, as a soupy mess and in a plastic bag when we get it on Monday.

Brian Brown:

Yeah, that makes it a little more difficult to diagnose. I'm sure.

Jim Jacobi:

I've got some really, really bad ones. And it's and so unfortunate because it you know, people have taken the time to send the sample. They've spent the money to send the sample in. It unfortunately ends up where it's not really usable for diagnosis. And then we, you know, usually within less than a week, we'll send you back a report.

It'll kind of show you what we diagnosed and what we found and on our recommendations as far as what to do next.

Brian Brown:

Well, Dr. Jacobi, thank you for joining us today. It's been very informative. Enjoyed talking with you today. So again, if you have any questions, as we always say, reach out to your local Extension agent and we can help. And if we can't help, we'll find you someone like Dr. Jacobi to help you out. So, thanks for joining us.

From the Ground Up is a production of the Alabama Cooperative Extension System.