Landscape Ontario Podcast

SPOTTED LANTERNFLY:

Protecting the landscape from an emerging threat

Host: Karina Sinclair
Guest: Jeanine West, PhD., Landscape Ontario grower technical analyst

Resources relevant to this episode

- Spotted lanternfly facts and resources - Landscape Ontario
- Spotted lanternfly observations in Canada
- D-24-01: Spotted lanternfly (Lycorma delicatula) – Domestic and import phytosanitary requirements - inspection.canada.ca
- Spotted Lanternfly prevention practices for producers | ontario.ca
- Video version of this episode

Transcription

INTRO:

Karina: It seems like there's a new invasive pest to watch out for every time you turn around. And today on the Landscape Ontario Podcast, we're talking about a planthopper that's working its way towards Canada. I'm your host Karina Sinclair, and today I'm talking with Jeanine West, a grower technical analyst at Landscape Ontario with over a decade of experience and a doctorate in plant pathology and physiology. Jeanine is here to discuss the invasive Spotted Lanternfly, its potential impact on Canada's grape and wine industries, and why early detection is critical. Jeanine shares details on how to identify the insect at various life stages, recent sightings, and a variety of resources to learn more about it. She also dispels some common myths, provides insights on challenges presented by the Spotted Lanternfly, and explains how you can help prevent this pest from becoming established in Canada.

If you are listening to this episode and want to see photos related to today's topic, check out the video version on Landscape Ontario's YouTube channel.

Don’t forget to subscribe to the Landscape Ontario Podcast to hear conversations about the challenges, opportunities and innovations shaping the green trades in Canada.

Now, let’s dive in and learn more about the Spotted Lanternfly with Jeanine West.

Music transition

INTERVIEW:

Karina: Hi Jeanine, welcome to the show. Thanks for coming on, and we're gonna talk a little bit about the Spotted Lanternfly in a second, but I'd like to know a little bit more about you. How did you come to have an interest in this kind of horticultural pest? Because I know you've done research on a number of these kinds of things. What attracted you to learn more about it?

Jeanine: I've been involved with the Nursery Growers group at Landscape Ontario for over a decade, and I'm their grower technical analyst. I have my doctorate in plant pathology and physiology, so I've been interested in insects and diseases and their impact on landscape and horticultural plants for many years.

Karina: So it's really fascinating that you've had this background. And so I'm gonna draw on that a little bit today and ask you about the Spotted Lanternfly. What is it and why should we be concerned?

Jeanine: Well, uh, Spotted Lanternfly is an invasive planthopper. So it is an insect that originally came from Asia, and it's been in the United States for a number of years now. It feeds on the sap of plants. It is a little bit like an aphid, but quite a bit bigger. It's not in Canada, that we know of yet, but there have been some sightings and so we're looking to ensure that we find it quickly and deal with it as soon as we see it in Canada.

Karina: So why is it a problem?

Jeanine: This insect is primarily a concern to the agricultural sector and the grape and wine industries in uh, Canada. It is a nuisance pest to the general public, but we do have some concerns, specifically for grape.

Karina: That could be pretty devastating for a few areas within Canada that have strong wine industries. These are great economic drivers in places like the Okanagan and in the Niagara region. So what could be the effects of not catching this before it becomes a real problem?

Jeanine: We do know that in the United States it's been devastating to the vineyards. And this insect, really, its preferred host primarily of concern is the grape vines. So it could be wild or cultivated grapes, which includes everything from grapes for, uh, beverages and for wine. So it's a really important pest to think about if you're a wine drinker.

We've seen very devastating effects in the United States, and it has actually wiped out some vineyards. We do not have it in Canada yet, and we hope it never reaches BC. But we do expect that it will come into Ontario. It's in the United States, in Michigan, Ohio, New York.

And we do expect to see it very soon. So our biggest defense is to look for it and to try to catch it early. We don't have a lot of tools right now to manage it. The important part will be to slow the spread of it and to delay it coming into Ontario as long as we can.

Karina: Now, why is it so important for us to detect it early?

Jeanine: There's a pattern with a new invasive where the insect or disease has a period where it's in low numbers. And if you can detect it while it's in that low number stage and low population stage, it's much easier to eradicate it. Or to even slow down and prevent the potential impacts.

There's a curve that many invasive websites will have. And it's sort of the stages of invasive species progression. And you can see that it starts out quite small with very low numbers, and that that stage is where you can monitor for it. It's hard to find, but it's manageable at that stage and sometimes possible to eradicate.

And then, the population starts to grow. When it becomes established, when it spreads and it gets bigger and bigger and it actually goes up exponentially, the population. And when it starts to get into that phase, there's no stopping it and there's no slowing it down. And it becomes much more expensive to manage it, and the devastation can be much greater.

So it's very important to be looking for it right now. This is the perfect time for us to find it, to slow it down. We could actually delay this thing by two, three years even, if everybody was out there with their eyes peeled looking for it. And it would save the grape growers, it would save the costs of management, and it would buy us time.

Karina: So that's definitely a call to action to address this before the tipping point. And we have that opportunity, which is not afforded to us with every new pest that comes along. Have we had success with other pests in being able to catch it early and keep it from reaching that top of the curve?

Jeanine: We have actually. I don't know all of the pest examples, but from my own history, one of the big pests for the horticulture sector on boxwood plants was boxwood blight, and that came in 2011 to Ontario. Growers knew about it and were aware of what to do, and they actually destroyed their crop that had it, and they were able to eradicate it when they first saw it.

What it meant was that there is not a nursery in Ontario, or in Canada actually, that has boxwood blight. There may be boxwood blight in somebody's garden. We can't guarantee that, people buy plants from all over the place. But on the production side in Canada, we do not have boxwood blight because growers knew what to look for, immediately destroyed their plants when they found this, and they were able to stop that exponential growth. And that's been huge. And predominantly boxwood in, uh, Canada is grown and produced in Canada. So, we generally have very clean plants across the country.

Karina: That's a really great example of how working together to do this can have a huge impact. It's not futile. It's not something where we would just throw up our hands and say, oh, it's coming anyway. Don't bother doing anything. Like, we actually were able to accomplish something. And, I think that's important to remember that when we all work together as green trades, then some really positive things come out of it. So thanks for sharing that example. It was really good to hear.

So we're asking landscapers, people who work in parks and outdoors and public green spaces, greenhouses, to keep an eye out for this pest. What should they be looking for? How can you identify the Spotted Lanternfly in its various stages of life?

Jeanine: It has several life stages and some of them are easier to recognize than others. The adult stage is probably the most recognizable stage. It's a fairly big insect. It's maybe a couple of centimetres or almost as big as a toonie as an adult. Those would be visible and present between July and the first really hard frost. So maybe November, December. The sightings that have happened in Ontario and Quebec are typically in that time period where people recognize that this is an insect that looks quite different. It's got beige outer wings, the fore wings, and they've got really distinctive black spots on them.

And again, I said they're quite large when they spread their wings. They have, their back wings actually have very bright red-orange patches on them that are quite distinctive. When the wings are folded, you

don't see that as much, but you still see those black spots on the beige and they're quite large, so they're pretty much unique and not like anything else you would've seen.

Karina: So that describes the adult version. How about the nymph stage or even the eggs?

Jeanine: That's a good question. So the eggs are laid between September through until later in the fall when the adults die, and the egg masses are, it's a group of eggs in a clump. It really just looks like a patch of mud. It's really hard to differentiate unless you're looking closely.

So they're laid in little rows. The eggs are laid in rows and they're covered with like a paste, and they look gray, beige, maybe a little bit whitish, depending on how soon after they've been laid that you look at them. And they lay their eggs on everything, every surface. On a vehicle, especially if you've been into the United States, or on equipment or trailers and transport coming in from infested areas. Or eventually when it becomes established, we do expect it'll be on even your patio furniture or your car.

Karina: Oh wow.

Jeanine: The nymphs are a little bit, they're more jumpy, so they're actually hard to catch and to see. But if you have, for example, a tree of heaven, and they are an invasive plant that is another preferred host of Spotted Lanternfly, and the nymphs start out about half a centimetre long and they can grow up to, by the time they hit their fourth stage, they can be almost a centimetre or so long. The early nymphs are black with white spots and a very large mouthpiece because, being like an aphid and a planthopper, they actually take their mouthpiece and pierce the skin of the plant to suck the sap out. So that it has a very distinctive mouth part. And as they get older and into that fourth stage, they become red with black and white spots, before molting into the adult stage.

So they're small, they run really quick and they don't like you to disturb their tree and where they are, so they will run away really fast. But if you know what to look for and you've looked at pictures of them, you can find them on either grape or tree of heaven hosts in the United States at the moment, and ultimately that will be how you can see them in Ontario.

[**Karina:** And you mentioned that they're not great flyers necessarily. They can fly some distance, but they're more likely to jump from plant to plant. And those egg sacks that are being laid on things in the States and being transported over, I mean, that could be pallets on a truck or the undercarriage of a vehicle or all kinds of different things.

Like you said, they can lay their eggs on anything. So you, you've really gotta keep your eyes open on all kinds of things that you wouldn't normally expect.

Jeanine: That's right. So anything moving, any kind of transportation between the U.S. and Canada. We've seen them across Ontario and Quebec and they've been typically dead or captured, because they've been trapped in packaging, for example. So we have found specimens, but there has been no permanent population discovered yet in Ontario. So, we really are encouraging people to know what to look for. So for example, the Invasive Species Centre has some excellent information. The Canadian Food Inspection Agency, I might say CFIA, that's what I'm referring to. They have a wonderful website and they actually also show you the observations and where they've been observed.

Then there's also the Ontario Ministry of Agriculture has a great website and some great resources, and of course, Landscape Ontario has pulled all of that information and those links together onto one webpage. Hopefully you'll be able to share the link for that because it's so critical that you, that every day people across the province learn how to recognize this insect. We need an army. And our army to find it is our citizens of our province. And that's a number one goal is learn how to identify it first and then know what to do when you do.

Karina: So all eyeballs on this job, and definitely I will be sharing a link to the Landscape Ontario resource that has the links to the other resources so that that can be found in the show notes. And if you're watching the video version of this, we'll have had it on the screen.

What should people do if they do spot it? Like what's the next step? They, they, they're out in the outdoors, they spot it. Then what?

Jeanine: The next thing is to, if you can, catch it. Because we don't think there's very many in Ontario yet, and that they're not established yet. So ideally you catch it, if you can contain it in a box or a jar that you have at home, that would be perfect or a Tupperware. And don't let it out. If you're able to squish it, that's fine too.

Keep the evidence if you can because the government does want to have confirmation of what it is. But, once you've caught it, the next big thing and the most important thing is to report it. So our CFIA, our Canadian Food Inspection Agency, has a webpage where you can report a sighting. They will follow up, they will do surveillance in the area, and they will confirm that it was or was not a Spotted Lanternfly. So we are really encouraging people to know what to look for and absolutely report it, because if we know where it is, we can try to slow it down.

Karina: Is it the kind of thing where if you see one, there's likely to be a lot more nearby?

Jeanine: Yeah, that's possible. It depends. At this time we don't know. A lot of the sightings so far have actually all been single adults or a single egg mass. So at this point, because it's not established, you might just get one and there isn't anymore.

Karina: Hmm.

Jeanine: However, if it is established, and we haven't found it here yet, and that's why we need all eyes on the ground, that's when CFIA comes out and that's when they'll do a survey, they'll look around the area and they'll check for especially its preferred hosts, the grapes and the tree of heaven, if there's any of those plants, because they'll look for a population. Once we know it's been established, it's quite likely if you see one, there's a lot, but at this stage, I'm not sure at this point, I think you just probably will see one.

Karina: What kind of damage do they do to these plants? They like the tree of heaven. They like grapevines, a couple of other plants. What do they do to those plants that cause such damage?

Jeanine: What they'll do is they'll insert their mouth parts and they'll suck out the sap of those plants. For some reason, those plants are very desirable to the Spotted Lanternfly.

The insect will land on other plants. It will look for a preferred host, but it's hungry, so it's going to eat along the way. So the nymphs and the adult stages will both land on any tree or shrub. There's no real preference. But it will move on. And so you might get some damage to those plants just because you're weakening it and you're taking some nutrients out.

So it's really important for your gardening and landscape plants that they're well maintained. You've watered them, you've fertilized them, and that they're healthy because then they can withstand that type of damage. It's no different than aphids on your roses or your hibiscus at home. However, if it was a tree of heaven or a grape, then they're more likely to stay.

That's their preferred food. The adults will have the capacity to actually kill the plant. So that's where we're really concerned about the grape growers, in Ontario in particular at the moment, because if we do have Spotted Lanternfly in a vineyard, we've seen damage in the United States. They've wiped out entire vineyards, so we know that's possible.

Karina: You mentioned earlier that they can create, um, a mold effect. Tell me a little bit more about the effects of their secretions causing something to actually happen on the plant itself.

Jeanine: Yeah, so they suck the sap in and when they're ingesting it and they excrete, their feces essentially is a honey dew, so it's very high in sugar and it's sticky and it'll drop on whatever is below. So if you have a grapevine on your pergola, and the Spotted Lanternfly comes and it's eating on your grapevines, then your deck below will be covered in sticky honeydew.

That's not great to start with. But it gets worse. It's a nuisance because that will draw wasps and hornets so then you have, just like having a can of pop open in the late summer, and you've got the wasp buzzing around. So that honey dew will draw those kinds of insects.

So, and then beyond that, after a period of time, just natural spores in the air will land on the honey dew and it's a source of food. So they will germinate and you'll have a black sooty mold that will develop on the honey dew as well. So it's unsightly. There's nothing wrong. It's not hurting anything but it's just not pretty. So that's why we say it's a nuisance pest. It's aesthetically not very nice, and there's a bit of a gross factor when you have a lot of these big insects when they're adults and they're all over, for example, a tree of heaven that you might have. People did use to plant tree of heaven. It has a great foliage and a really great shape. So, there are still some legacy trees around and there are some in the wild as well, right. And in naturalized areas. So, it's possible to have swarms of the insect all over the tree. And that's kind of not my thing. I'm not an entomologist. So I prefer the disease part. (laughs)

Karina: Yeah, that gross factor is enough to convince me to keep my eyes open for this pest. Where I live, we have a lot of tree of heaven that has escaped the landscape and it is naturalized. It pops up everywhere. I am finding seedlings of it in my lawn, and I'm always pulling them out. So this particular invasive species, the tree of heaven, could this be an upside, like if I was to play devil's advocate and say there's a good element of this pest coming in, like could it help wipe out another invasive species?

Jeanine: It's a bit of a stretch, but what we are saying is, if you have a tree of heaven, adopt it. So Adopt a Spot is our logo for a Spotted Lanternfly. Adopt a Spot because if you have grapes or you have a tree of heaven, then it's certainly a good marker. It's a good place to be looking.

So if you go back every week in the summer and you have a look at that tree and keep an eye out and you can report it. INaturalist is an awesome way to upload things. CFIA is watching that, or directly to CFIA is even better.

It's kind of an upside. It's definitely a good monitoring tree, and eventually they will succumb to extensive Spotted Lanternfly infestations. But yeah, I'm not sure. That's a, that's a bit of a balance there. I'm not sure if it's really a great thing.

And I mean, we could also argue that it's, um, providing opportunities for young people in horticulture to learn about different pests. To become part of the research and advocacy team for helping growers and helping industries deal with invasive pests. So there's opportunities here, but I'd rather have not had the pest at all.

Karina: So this isn't the only pest that we've dealt with in the past. Box tree moth has been a huge concern. Emerald ash borer. The list goes on. Can we use what we use to tackle those pests to combat the Spotted Lanternfly?

Jeanine: I think the approach is what we can use. Unfortunately, the chemistries and the technologies that are developed for various pests don't often translate to new pests. So, for example, box tree moth is extremely manageable with BTK, which is a bacteria-based treatment. It is put on leaves, caterpillars of box tree moth chew on those leaves, ingest the bacteria, and then they die.

But Spotted Lanternfly doesn't have a caterpillar stage, so that doesn't work. And that's too bad because it's a very targeted type of treatment that is relatively safe, especially if it's applied just to specific plants like boxwood. Other tools, we don't have a lot of tools in our toolbox for, in terms of chemistry, for even the agricultural industry.

And what they're finding in the United States is even the tools they have, they have access to more than we do in Canada, they're not working that great, so there's a lot of research there. But what we are able to use is the method and the communication protocols. And that has actually been a real bonus that we've worked very closely between industry, the public, municipalities and the Canadian government, the CFIA, and develop partnerships with the province.

The Ontario Ministry of Agriculture and Food has a great team working on this. Cassie Russell is the nursery and landscape specialist. Hannah Fraser is a horticultural entomologist. Wendy McFadden Smith is a horticultural IPM specialist. So there's a whole team of people at the Ministry of Agriculture in Ontario working on this pest and learning about its best management practices, providing updates, helping with surveillance and monitoring. So we've developed these relationships with OMAFA, and CFIA and industry and municipalities and the general public. Which, that box free month, for example, that experience really helped us so that this time we were even more prepared.

So we're able to work together faster. We know who to contact, how to have a team put together. And so that's been a real benefit and I believe we've got a big lead time. We know what it's doing in the States and we've had warnings and we've been able to put this team together. So those other pests have given us that background.

Karina: That's great that we're able to learn from that history. And it sounds like we have the ability to pull on these different strengths and the knowledge of other agencies.

Now, are there any biological controls for the Spotted Lanternfly? Do they have any natural predators?

Jeanine: At this point, no, we don't. As I mentioned, it's from Asia. It's fairly new even to the U.S. Nothing yet that we know of that will manage it or target it. I think over time, as it becomes established in Canada and as predators, for example, for birds or other, uh, animals that eat insects, they may find a liking for it. But it's not likely to really do a lot. We're seeing a little bit of that with box tree moths with birds knowing to go to a box wood plant when they never did before to find larvae. So it's possible, but, uh, we think that there probably are other technologies that might be better.

There might be new chemistries that we can use that are safe, that are targeted. There's hope in using parasitoids. So particular insects that maybe are effective in Asia against it that can be evaluated and determined if they're safe to deploy in Canada, and not have a negative impact on the rest of the ecosystem. Uh, There's a lot of work being done right now on that.

Karina: Right, because the danger could be that any solution we bring in to combat the Spotted Lanternfly could be a problem of its own. So, I imagine that's something we want to avoid.

Jeanine: Correct. So there's a huge amount of research that goes into those kinds of potential solutions way before anything ever would happen in the environment before anything would be utilized naturally. So there's a lot of research first, but there's a lot going on and we're also looking for, at this point, we're looking for how to find it faster. How to spot it. How to slow it down. So one of the really cool things that the government is doing is they've actually started working with a dog to train the dog for scent of the Spotted Lanternfly egg masses.

And they move the box around that has the lure in it and has the egg mass in it, and the dog can pick it out right away and it can alert the trainer. They're just trying to separate out the differences so that the dog has scent training, so it knows how to identify and differentiate between different insects. So that's actually going really well. So there's all kinds of different approaches and the government is being supportive of all kinds of different tools to try to identify and then look for treatment solutions.

Karina: That's fascinating that they're using a dog to do that. I mean, I would imagine that being able to detect the honey dew on the plants would be an easy find, but to actually look for the egg masses, that's definitely better. You wanna catch them before they hatch and that's pretty cool.

What are some myths or misconceptions about the Spotted Lanternfly that you'd like to see corrected? I mean, we're doing this big communication effort so that people understand what they're looking for and the impact it'll have on the environment. Is there any information out there that needs to be corrected?

Jeanine: There already is unfortunately some misinformation about Spotted Lanternfly. Maybe I'll just list them. **Myth number one**, that the insect is established in Canada and no, it is not. There have been sightings, we have observed it. CFIA has come and checked and found a specimen, a single, either an egg mass or an adult.

But it is not established in Canada yet, and that's why it's so important that we learn how to recognize it and report it. **Number two**, Spotted Lanternfly feeds on everything and can kill everything. And that's false. So Spotted Lanternfly does prefer grape and the tree of heaven, *Ailanthus altissima.* It will land and it can feed on anything, but it won't damage everything.

So it moves on until it finds a preferred host. It'll be a nuisance pest, but it won't kill their plants. Yes, it can feed on everything. But it's not the end of the world. **Another myth** is that, we've seen actually advertisements from people who say, oh, it's here and we have the tools to fix it.

And we can help you as a homeowner. We'll eradicate it for you. So two problems with that. One, it's not here. But secondly, there are really no tools. We do have Insecticidal soap and there's manual squishing, the good old fashioned way of killing it. And if there are egg masses that you find, make sure you really squish it because it's thin and it doesn't look like there's, you just can't stomp on it. You've gotta make sure all those eggs are dead. So be wary of what's out there and advertisements because we don't really have the tools at this point to just spray and fix.

And then another **number four** would be that they bite, and they don't bite. They have, like I said, those mouth parts that are long and they look quite big and nasty, but it's really just for piercing bark and stems of trees and shrubs and that's all they do with it. They don't hurt your dog, or your pets, or people. I would say those are probably the biggest myths that are out there right now.

Karina: Okay. Those are some good ones to know, especially that one about some contractors saying that they have the tools to eradicate it then that definitely sounds...

Jeanine: It's opportunistic.

Karina: Exactly, yeah.

Jeanine: Yeah. And I think, you know, Landscape Ontario has great membership, and if you're working with a reputable contractor, that's not gonna happen. But as you know, with all kinds of different topics around the world, there's good information and bad information, and you do have to do your homework. So make sure you're going to the right sources for information, and then you'll be all right.

Karina: That's great advice. And again, we will have the links to all the resources that you mentioned earlier that are available through Landscape Ontario and through the government available to anybody who wants more. And if you've been watching the video version of this podcast, you'll have seen plenty of images of the Spotted Lanternfly at all stages of its development.

I hope this gives everyone enough information to keep their eyes open, Adopt a Spot, and keep this pest from rolling in as much as possible. And then at some point, if we have to live with it, we have to live with it, but we can maybe mitigate the damage that it does in the meantime.

Jeanine: That's right. I think the key is to give growers, especially grape growers and vineyard production, as much time as possible to find new tools. So if we can slow it down a couple of years, that would be great. So learn how to identify it, use those resources, use the link and report it to CFIA and, you know, work together. I think if people across Ontario do that, we will have bought ourselves quite a bit of time.

Karina: That sounds very promising. Jeanine. Thank you again for coming on the show to share your expertise and insights on this incoming pest. I really appreciate that you were able to knock down some of those misconceptions and give people the real information.

Jeanine: My pleasure.

Music transition

EXTRO:

Karina: Consider this as your call to action. Adopt a Spot, and if you see a Spotted Lanternfly, catch it if you can. Report it to the CFIA and help protect our vital industries! Landscapers working outdoors on a regular basis are well placed to notice these planthoppers before anyone else, so your awareness and action can truly help slow the spread.

And, as always, I'd love to hear your thoughts on this episode! My goal is to help inspire and inform landscape professionals like you to reach higher standards and find new opportunities. So whether you have feedback, suggestions for future topics or ideas for guests, send me a message at podcast@landscapeontario.com.

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