Speaker 1:

Welcome to Urban Plant Health Network's podcast series, The Good, the Bad and the Bug-ly.

Drew Radford:

If you look carefully, you can find all sorts of bugs in your urban backyard. Knowing the difference between the good and the bad bugs and reporting the bad bugs or exotic pests when you see them is essential to keeping our gardens and horticulture industries healthy. Today, we're going to take a detailed look at one of the exotic or bad bugs, the tomato potato psyllid, otherwise known as TPP. And as the name suggests, you do not want to find these in your tomato or potato plants. To find out more, I'm joined in the Urban Plant Health Network's Podcast Studio by Callum Fletcher, Biosecurity Coordinator at AUSVEG. Callum, thanks for your time.

Callum Fletcher:

Thank you very much for having me.

Drew Radford:

Callum, what is TPP, and why should I keep an eye out for it?

Callum Fletcher:

The tomato potato psyllid is a very small little insect. It's black. It's got wings, and it's about the size of an aphid. But the one distinguishing feature about it is it has a strong white band across its back. And that's certainly a way that you can keep an eye looking out for it.

So, it's a nasty little exotic pest. What I mean by that is that it's something that we didn't have in the country up until very recently. It arrived in probably around 2017 in Perth and has since spread around West Australia. But luckily, it's not present in any of the Eastern States at the moment.

So, we want to keep it like that way. So, the idea is that we hope that we can get members of the public to keep an eye out for it and report it if they see it. Because the longer we don't have it here on the Eastern States, the better it is because it's been a real pain for the West Australian members of the public who have vegetables in their back garden and also the farmers who supply us with all the food that we eat.

Drew Radford:

Well, Callum, we'll drill down into the bug and its details a little bit further, but you're saying it's a real pain. But what does it actually do to plants?

Callum Fletcher:

Yeah. Okay. So, what it is, it's a sap-sucking insect. It flies in and will then suck the sap out of the plant, and what that does is weakens the plant up to the point where it may actually kill it. But even while feeding, it's draining the energy. So, what that means is that any of the fruit, capsicums or tomatoes or so, or any potatoes and tubers, they're distorted, they're shrunken, they're sick basically, and not great eating. And it lowers the yield as well. So, you don't get as many products out of it.

The other thing it does is it transmits a bacteria. Now, this isn't a bacteria that's harmful to humans, but what it does is cause the potato to go a darkish brown in colour when we cook it or boil it or fry it. And, of course, this is unsightly. It looks ugly. And it also means that it can't be used for making chips or any of those products that we enjoy when we have potatoes. So yeah, that's called zebra chip disease. And sadly enough, this little bug is a great carrier of that.

But luckily from what we know so far that actual bacteria isn't present in Australia. So as long as we keep it that way, the better it is, but this is something that people need to keep an eye out. If you're cooking potatoes and you suddenly see that they've all got this brown stripiness to them, that's something we should be really concerned about and worried about. And it would be great if people would report that if they do see it.

Drew Radford:

Earlier on, Callum, you gave a brief description of what it is. It's a flying insect, isn't it? But let's start at the eggs. What do they look like? Where do people find them? And what do they need to look for?

Callum Fletcher:

So, I just described the adult, which is rather tricky to see, because it's got such strong hind legs that when you see it on the plant, you slightly disrupt it. And what it does is jump about a foot in the air and fly off.

Now, the eggs are quite interesting. So, if you're looking at the fringe or the edge of a tomato plant or a potato plant or a capsicum plant, there will just be these tiny little dots hanging right off the actual edge of the leaf and connected by a small connecting band. They are tricky to see, but what they are is they're only along the edge of the leaf. So, you won't see them throughout the leaf. You'll just see them right on the sides there.

The one thing I really do though get people to look out for is the nymphs or the young. So, this is where the eggs are hatched, they develop into small little insects that don't have wings. They look like scale insects, if you're familiar with that. They're yellow. As they grow up, they get these little wing pads as they're developing those wings before they are able to use them. And now they're green. So, you're getting a little yellow insect, sort of diamond-shaped with green wing pads.

Now, why say I for people to look for these is because when you look at them, they are usually on the underside of the leaf and usually midway down the plant. So, if you go and look at, say, a tomato plant and look in the middle, mid-range leaves and look underneath them. The reason why I say for people to look for them is because they won't fly off. So, they don't go anywhere. So, you can have a good close look. And if you are concerned, then it's easy to take a few leaves and put them in a plastic bag and store them potentially something in the freezer, which will keep them safe so that someone can have a look at them.

The other thing that members of the public might be aware of in looking for these psyllids is when the nymphs or the young are feeding, they secrete some sugary substance, which looks a little bit like icing sugar. And that stays on the underside of the leaf where they have been feeding. So, if you're seeing little sugar crystals on the leaf, and then sometimes what that causes is a little bit of sooty mould colouring to develop on the underside of the leaf. So, if you're seeing something like sugar or some mould developing amongst that sugar, then that's a sure sign or a very good sign that the plant's being fed on by these little critters. So certainly, keep an eye out for that.

Drew Radford:

Callum, is this a bug that you treat yourself or, because we've only seen few instances of it in Australia, this is something you really need to report rather than spray it and try and kill it?

Callum Fletcher:

That's exactly right. If you're living in Perth, it's too late. It's become established from up to Carnarvon and Geraldton up in the North along down to Albany in the South. So, a large swathe of West Australia has the psyllid. So those growers, people with back gardens in the Perth metro area or those towns that I mentioned, absolutely fine for them to get the spray out and try and manage them because it is having a real impact on their growing over summer.

There are bugs that will feed on them as well. So be careful with what sprays that you use because things like ladybugs or lacewings are great at controlling the psyllid numbers as well. So, they will be munching away. And if you use the wrong kind of insecticide, then you might accidentally kill those beneficial bugs.

But certainly for anyone who is living in South Australia, Tasmania, Victoria, New South Wales or Queensland and Northern Territory, if you are seeing these signs in your plants, then what I'd like you to do is take some photos, take some samples if you can. Put them in a freezer bag or something like that and store them and call the exotic plant pest hotline, which is on 1800 084 881. And what they'll do there is they'll put you in contact with an entomologist, a bug scientist, and that person will be able to talk you through about what you've seen and decide whether or understand whether it is actually the tomato potato psyllid.

Because if we can detect it early over in one of these Eastern States, what they can do is eliminate it potentially. The government will have trained staff that will hopefully be able to contain where the psyllid is and get rid of it so that we don't have to continue to have its presence.

Drew Radford:

And Callum, I'm guessing too this is a timely reminder for following pretty much the same procedure for anything that you find in your garden that you suspect as being an exotic pest.

Callum Fletcher:

That's true. There is a range of other pests and diseases that we like to try and encourage people to keep an eye out for. Because some things like the psyllid, yes, they are difficult to see without the help of microscope, but there are other ones out there in other countries that do tend to show up every now and then in Australia. But they're quite distinctive, and that's why we ask the members of the public to keep an eye out for them because they're memorable, they are distinctive and probably reasonably easy to identify. So, we've got a few that we try to encourage people to keep an eye on for.

Drew Radford:

Tell me some of those, Callum.

Callum Fletcher:

A lot of Australians are familiar with the fruit fly, the Queensland fruit fly and mid fly. They're not in certain parts of the country, so if you do see some fruit fly, make sure that you report it.

Another one that people might be aware of is the bumblebee, which is present in Tasmania, but isn't present in mainland Australia. And if you've seen pictures of them, they're very cute, and they're rather large. So, you probably would be able to pick them if you did see one.

And then finally, the one that we also like to push with the members of the public to keep an eye out for is the giant African land snail. And as the name suggests, it's a very large snail. And if you see a very large snail, it's worth reporting, because what these things do is they breed like anything. And an adult female can lay 800 eggs, and soon these infestations or numbers of snails just get out of control. And because they're so large, they can eat a lot. And it's certainly not something that we want to have over here. And because it is a snail though, it aids in getting rid of it. They're not going to go flying away or move fast. So if we can get on top of it soon, then we can contain them. They're the ones that I would say that people should really keep an eye out for.

Drew Radford:

Callum, just before I let you go, probably a bit of a timely reminder in terms of general biosecurity responsibilities, but any idea how TPP actually got into the country to start with?

Callum Fletcher:

Well, that's a good question. We do know how it got into New Zealand, and we suspect that it's similar to how it got into Australia. So, people were actually smuggling chiles most likely. And what happened was that the eggs and the nymphs were actually in the topping or the calyx of chile, and they got in and basically established themselves in a few glass houses and then went crazy.

Now, we don't know if that's the case with Perth, but certainly it's far too far for a psyllid to fly all that way from New Zealand to Perth. The most likely scenario is that it was human transported, either through shipping or coming across with people flying into Perth.

That's why we have these federal staff at the airports and working in the ports, working to check if people are bringing in food or other products into the country. Because these little things, they can stow away unintentionally on things that you've bought from your holidays back when we could have international holidays. And what they do is establish themselves in the Australian environment and potentially can spread over the entire country, doing tremendous damage to industry.

So, what they do is they get into farms. And what it means is that growers have to either use more insecticide or the yields drop so much that what happens is that the effect is that we pay higher prices for produce in the supermarkets. And the other impact, of course, is on everyday members of society who have gardens. You put all this effort into growing up seedlings, and then suddenly it's all ruined by a brand-new bug. So, backyard gardeners and consumers really are impacted by the arrival of any new plant pest and diseases.

Drew Radford:

Callum, one last time, what is that phone number and also web address if people suspect that they do have an exotic pest?

Callum Fletcher:

The phone number is 1800 084 881. And if you are looking for the address, well, it's probably best to phone, but you can also go to the Plant Health Australia website.

What will happen is that you'll be put in contact with a professional who will be able to ask you all the right questions to discover whether it is or isn't a pest. And don't be afraid to do that if you see something, because it might be something that's already present and not a problem. But if it isn't, the sooner we get onto controlling its spread and limiting it, the more likely we will be able to eradicate and keep it out of Australia.

Drew Radford:

Callum Fletcher, Biosecurity Coordinator at AUSVEG, keep up the good fight in terms of keeping those bugs out of Australia and the ones that have got through under control or eliminating them. And thank you very much for joining me in the Urban Plant Health Network's Podcast Studio.

Callum Fletcher:

Thank you very much for having me. I really appreciate it.

Speaker 1:

Thank you for listening to The Good, The Bad and The Bug-ly. For more episodes in this series, find us and subscribe wherever you get your podcasts. We would love to hear your feedback, so please leave a comment or rating and share this series with your family and friends.

All information is accurate at the time of release. This podcast was developed for the Urban Plant Health Network.