Speaker 1:

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

Drew Radford:

Healthy plants and green spaces give us a whole range of health benefits, from good food, right through to reducing stress, as well as providing spaces for exercise and also meeting up with friends and family. For all of these reasons and more, it's important for people living in the city to care about plant health and keeping our gardens and parks free of pests and diseases. To drill down into this a bit further, I'm joined in the Urban Plant Health Network studio by Dr. Jessica Lye from Cesar Australia. Thanks for your time, Jessica.

Jessica Lye:

Thanks, Drew. Thanks for having me.

Drew Radford:

Jessica, let's start at basics. For you, what does biosecurity mean?

Jessica Lye:

I grew up in the city in Melbourne and my background is in science. I was a researcher in a past life, and I never gave a whole heap of thought to our food production, or plant health for that matter, even though I've always been a pretty interested gardener.

Jessica Lye:

But at one stage in my career, I was given an opportunity to start working in the horticulture industry in the area of plant biosecurity by dent of my scientific background and my communication background. And that kind of catapulted me into an entirely new world, where my eyes were really opened to food production and the challenges faced in growing food, particularly fresh produce, to the quality that we actually have access to in Australia.

Jessica Lye:

Anyone who tries to grow their own produce at home knows actually it's quite difficult to grow really, really nice, high quality tomatoes or cauliflowers or broccoli or leafy veg. So, working in that area really did give me an appreciation of how difficult it is to grow good food, and also an appreciation around the kind of problems faced by growers in relation to pest management.

Jessica Lye:

And of course, part of that is around biosecurity. So that encompasses management of pests that we might already have in the country that are maybe found in one region, but not found in another, or it might encompass species that aren't found in a country yet.

Jessica Lye:

And a couple of examples of these are Tomato Potato Psyllid, which was found in Perth a couple of years back, and Varroa mite and Brown marmorated stink bug.,

Jessica Lye:

And of course, ports around Australia are often found in highly urbanised environments. We have around over 80 ports in Australia, and most of them are found in highly urban environments, and combined with that, the majority of Australia's population is found down the Eastern seaboard. So, these urban environments can be very, very complex.

Jessica Lye:

And over the past couple of years, I've really started to think quite a bit more around plant health in cities, how can we keep our plants healthy and productive and protected from invasive species, but also by extension, how can we increase our understanding of plant health in cities so that we can also provide some protection to production areas further out from the city, those production areas that produce our food. So just in terms of plant biosecurity, it's really around that two pronged, how do we make sure plant health in cities is retained, but also how do we protect production areas?

Drew Radford:

In regards to that, you've kind of alluded to it, but maybe elaborate a little bit in terms of why is it important for people to think about plant health if they do live in a city?

Jessica Lye:

Yeah, it's a good question, Drew, and there's a few answers to that. And I think it really depends on the kind of person you are, but when it gets down to the crux of it, no matter what your interests are, we all eat food, we all have a need for good, nutritious food. But part of the answer to that question is around our food bowl that surrounds the city, but also just in thinking about living in a city, we have a green wedge area around Melbourne for a few reasons.

Jessica Lye:

One of the reasons is to provide green relief to people living in the city. It's really well-known and it's been really well-studied, that having access to green spaces for those living in city environments can be really beneficial for your mental health. And we also see this when people are involved in groups like community gardens, but it's also around an interest in having a sense of community and creating a sense of place and stress-relief as well.

Jessica Lye:

But in terms of the more nitty gritty of production of food around our city, we produce food obviously in many places around Australia, but not a whole lot of land around Australia would be classified as arable, so really, really productive land. And often, we find very productive land in a food growing sense around city areas.

Jessica Lye:

But in terms of the Melbourne food bowl, it has the potential to be highly, highly productive. So, there's been some really good research undertaken by Rachel Carrie's group at the University of Melbourne, the Food Print Melbourne Group. And what they've done is they've tracked the extent of food production around the Melbourne food bowl, and they class the Melbourne food bowl is the inner food bowl, which is your Yarra Valley, Werribee, peninsula areas. And then, we have an outer food bowl, which extends out to Bacchus Marsh, the Surf Coast and the Baw Baw region.

Jessica Lye:

In terms of what is produced in our food bowl, we produce 90% of the whole country's asparagus supply, which is huge. That's grown out in the Cardinia Casey Shire, which is not far from the Melbourne CBD. And we produce 78% of Victoria’s strawberries, and 85% of Victorian cauliflower. And we produced a whole range of other fresh foods, herb's and leafy greens, apples, grapes. We've got a huge diversity.

Drew Radford:

I understand from this analysis though that you have great concern about the future productivity levels of this region in 10, 20 years time.

Jessica Lye:

At the moment, our food bowl has a potential to produce 41% of the city's food needs, not just the fresh food needs, but the entire food needs. By 2050, the capacity for that food supply will drop from 41% to 18%, which is really huge. That is coupled with the food requirement of the city, which is expected to go up by 60%. So when you think about what the ramifications of that would be, we'd be looking at longer food supply chains, which means food will be coming from further a field, quality will be reduced, supply chains will be less resilient. They'll be potentially impacted by weather and other events.

Jessica Lye:

So, there's a really good argument to have a really good awareness of our own food bowl and start to really think about, well, what can we do to better protect the food bowl that we have, that provides us with local food at the moment?

Drew Radford:

Jessica, what you're saying there ties back to what you've written about recently in terms of social capital and why that's important in terms of biosecurity incursion. Can you just elaborate on that a bit further for me?

Jessica Lye:

I guess traditionally, in the case of at least plant pest incursions and plant biosecurity, there's been a tendency to push out information around particular pests and raise awareness about certain pests. And it's been a bit of a uni-directional communication approach.

Jessica Lye:

We did a bit of an analysis and there were a few parts to our report, but we had a look at community gardens around Melbourne and the kind of role that they might play in maintaining plant health. And we looked at followership on Facebook among those involved with community gardens. We found 173,000 followers across the city are involved with community gardens in Melbourne.

Jessica Lye:

In terms of social capital, what we're really talking about is rather than sending out information in a one-directional way around certain plant species, let's have a look at those community level organisations and the communication networks and how they're doing their training. And let's look at ways to boost the way that they communicate and boost their potential to access local knowledge brokers to facilitate peer to peer learning when it comes to plant health.

Drew Radford:

You've identified it, but how do you make that work?

Jessica Lye:

From a survey that we did, we found that there's a really high willingness to report exotic plant pests in urban areas, but a barrier to reporting is people just aren't really sure about what is unusual. So, they have very low confidence in picking out what's strange in their garden, and they don't know necessarily where to report to.

Jessica Lye:

What we did was we had a look around the city and where these community gardens are actually based. And we had a look at the reach of those gardens, based on membership and social media and some other factors. And we found there are hotspots around the city where there is some really, really high social capital in relation to community gardens. The Port Philip area and the Yarra area are very high in terms of community gardens social capital, and these are potentially some areas where governments can be a bit more strategic around engaging with these groups in these areas to help them initiate some communication networks or strengthen current communication networks to expand their reach in local areas.

Jessica Lye:

And this is important because these particular hotspots overlap distribution points for fresh produce that has come in from overseas. But we also found that areas around the Western part of the city and Northern part of the city, where there's a lot of housing development going on, there's very low social capital in terms of these community garden networks. So, we can actually have a bit of foresight here and look at, well, can we actually help to set up some communication and knowledge broking networks in these areas for the future?

Drew Radford:

You talk there, Jessica, about people were having the confidence to identify some of these bugs, and we've talked about them in previous podcast episodes, such as the brown marmorated stink bug and the giant African snail. I watched a webinar of yours recently and you talked about another bug that I wasn't aware of, which was the berry monster. You coined it as the berry monster, but it actually has a very different name. What is it, and why should people be concerned, and how should they identify it?

Jessica Lye:

Yeah, so there is a species found overseas, which isn't found in Australia. It's called the Spotted wing drosophila. It has a very strong preference for berries, cherries, stone fruit, those really nice, sweet, soft fruits. It looks a lot like the vinegar fly, which you would commonly see in your compost at home. These are tiny little drosophila flies, only a couple of millimetres in length, and you will see them flitting around.

Jessica Lye:

The main difference is spotted wing drosophila has an ovipositor at the end of its abdomen that looks a bit like a bread knife, it's serrated. And this allows it to dig into grapes or cherries with harder skins that are still on the vine and still ripening, and deposit eggs in that fruit, similar to Queensland fruit fly, and the larvae then will grow inside that fruit and devour it from the inside.

Jessica Lye:

It's caused a lot of problems overseas. It's the kind of species that will be difficult to identify by eye, just because it is so tiny and it looks a lot like the kind of drosophila we would find in the country, but the difference being it's the only drosophila species that can actually lay eggs while the fruit is still on the vine. Vinegar fly would lay eggs in winded fruit or fruit that's already dropped off the tree.

Jessica Lye:

If there is something unusual happening on, for instance, your cherry tree or on your grapevine, where you notice that there is an infestation of these larvae, that's the kind of situation where you might think, "Well, that's a bit unusual. I've never seen that before," and get in contact with the state department of agriculture.

Drew Radford:

Lastly, Jessica, any tips that anyone listening to this can implement in their own garden to improve their own garden health?

Jessica Lye:

There's a range of, we would call them, sort-of biosecurity best practice tips that you can employ. And part of that's around making sure that you secure seed from registered seed suppliers, that you know where the seed has come from. So, we're reducing potential transmission of diseases. Part of that is general good garden maintenance. So, pruning at certain times of the year to make sure there isn't an area where pests can incubate and potentially spread to surrounding gardens.

Jessica Lye:

But I think the take home message should be to be mindful in your garden. Get to know your garden and what it looks like in different seasons and what kind of insects, beneficials and pest insects, you might find around the garden at different times of the year. And just go out there and have a sit and gain a bit of an awareness of what's normal. And apart from that, have a look at any local advice that you might gain. There's a lot of really good community groups and local knowledge brokers out there who can provide some amazing information on what your garden should normally look like and what might be unusual. So, getting involved in the community on the topic of gardening as well.

Drew Radford:

Jessica, what I'm taking away from all of this is that we all have a role to play in helping maintain Australia's food security by keeping a watchful eye out for invasive pests. Dr. Jessica Lye from Cesar Australia, all the best with your ongoing work in this important field and thank you for joining me in the Urban Plant Health Network studio.

Jessica Lye:

Thanks, Drew.

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