Environmental Biosecurity Webinar to the Department of Agriculture, Fisheries and Forestry about Xylella Preparedness

 Transcript

Department of Agriculture, Fisheries and Forestry

Xylella Preparedness

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**Presented by:**

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[*Opening visual of slide with text saying ‘Xylella Preparedness,’ ‘Department of Agriculture, Fisheries and Forestry, ‘Xylella Preparedness, ‘Webinar 4 – Overview’, ‘September 2023*]

**Susie:**

Xylella is a high risk, exotic environmental pest, and it's also our number one plant biosecurity threat from the agricultural side. And it's a really good example of one of these exotic threats that we have that do cross sectors, which means we really make sure we work together and make sure we keep communicating, engaging across those different sectors so we can get the best out of the protection that we're providing.

Xylella is not in Australia, we don't want it here. It has the potential to be particularly devastating across a whole range of plant species, not only agricultural crops but also our native environment and our native plant species. It's known to affect things like wattle, which is our national floral emblem, and it could also obviously impact biodiversity and other ecosystems.

And because of that, as well as agricultural food crops like olives and wine and the like. So, it has quite a large host range. It can affect over 600 host species. There's a lot we don't know about it, particularly when we start talking about Australian native species. So, there's quite a bit.

of uncertainty when we try and make sure we are prepared for this particular pest in our environment.

But what we do know, and we do expect is that that it will cause quite a lot of impact on our plant life across the board. There's no cure for Xylella and the damage is irreversible. So, it's really a pest that we don't want. So, what is it? It's a bacterial species. This slide shows the interplay between Xylella the bacteria with its insect vector and with the infected plant.

So, when Xylella infects the plant, it clogs up the is xylem. So, the bits of the plant that conduct water, so it blocks the water flow up and it causes what looks like water stress in the infected plant. And it spreads through insect vectors, through insects that are sap-sucking. So, these come and feed on an infected plant. The bacteria contaminate, if you like that the insect, which then hops off, goes to another healthy plant, has another feed, and thereby transmits the bacteria.

So, the vector is really critical to the spread of Xylella. And it's really this interaction between the bacteria, the vector and the plant that is important. It's also been known that the Xylella once it contaminates or infects a vector, it can stay there throughout the insect’s life. So, it's there in the insect for good and then can go on and infected a quite a lot more healthy plants.

When we talk about the plant as I said the symptoms usually look like water stress. So that can be sometimes quite difficult to differentiate between other causes and it makes it hard to diagnose. There's also a lot of asymptomatic plants which again impact our ability to be able to identify and control it. So Xylella itself is made up of a couple of species and a couple of subspecies, as you can see on the slide there.

And they have different characteristics. The subspecies can infect different plant species. So, it's complex and we need to understand that. So that when we are thinking about preparedness, we've got the right measures in place. So, you can see here the distribution across the world. So Xylella is largely in the Americas, although in around 2013 it was detected in in Europe.

And it's likely that we'll see further spread throughout Europe because of the nature of the vectors and the way it’s spread. So, this slide here just quickly talks about the olive industry. A lot of the work that has been done around Xylella has been done in the agricultural sector. But as I said, there is potential for quite significant impact on the environment.

So, what happened in Italy, it was detected in 2013. They thought that it's probably been there for quite some time. It quickly spread throughout the Apulia region of Italy and in that region, there are olive groves that are centuries old. So, it devastated them. A lot of groves had to be cut down and destroyed. And of course, when you think about Italy and olives, that's quite a big cultural impact as well as the biological and the sort of agricultural production.

And so, when we think about again, when we think about Xylella in our in our own situation, we need to be conscious of the cultural aspects and the impact that it can have, as well as the plant health and the biological things. So, you can say it's estimated €5.2 billion over 50 years. And ABARES have estimated that in Australia, Xylella could cause up to eight or eleven, around that sort of margin, billion over 50 years just for the cropping sectors.

So not including the impact on the environment and our landscapes, just for the cropping sectors, between 8 to 11 billion over the 50 years. So, when we think about preparedness, one of the first things we do is look at pathways of entry into Australia.

So Xylella could of arrive in Australia on an infected plant propagated material or it could come through insect vectors that might have hitched a ride on cargo or sea vessels or aircrafts or things like shipping containers and maybe even things like mail. So, you can see from the statistics on this slide, there's lots of opportunity for Xylella to potentially enter Australia every year. So, we’ve got our inspections at the border, and we've got requirements for import for live plant material, and these really go a long way to helping us stop entry of the pest and to protect Australia.

At the border, we look at inspections and we do tests and the like to really make sure that plant material doesn't have Xylella in it. So, one of the ways we do that, we do a risk analysis of a particular pest to make sure our import conditions and controls are appropriate. In response to what we're observing overseas in Europe, we introduced emergency measures back in 2015 to prevent some of the risk pathways we were seeing at the time, and that was based on the status of Xylella in a particular country and it was based on the type of plant material that was being imported.

We also took some measures that were focused around vectors and making sure that nursery stock was treated. And so it didn't bring any of those vectors along with it. Emergency measures we can't keep forever. You've got to actually do a proper risk analysis. So, we started a risk analysis in back in 2018. We've got a draft.

The draft has been out for comment, and we hope to be able to finalize that risk analysis in 2024. And the risk analysis really assesses all the pathways. It looks at risks and it makes sure that the measures that are in place help reduce the threat or the risk of Xylella coming into Australia. To meet our appropriate level of protection.

But that's not all we do; biosecurity is a system. It’s not all about the things that we do at the border, and we don't just rely on our border measures. So nationally we work together to make sure we've got a strategic focus for Xylella preparedness, we've got working with our domestic stakeholders to make sure that we're prepared and to make sure we're coordinated and doing the best we can and the right things to be able to control Xylella, should it come into the country.

And the way we do that or the tool that we use to do that is through the National Xylella Action Plan. You could see that up here on our slide. So, the plan focuses on actions to improve the

management of risks associated with Xylella, and it covers prevention, detection, response, and cross-cutting actions. The actions in here cover all the subspecies of Xylella.

So, we're looking to make sure that we're appropriately managing the entire risk. And one of the more recent achievements of activity under this plan was earlier this year when we've granted an import permit for an importation of a live culture of Xylella into Australia, specifically for research purposes. And that might sound a bit scary, but the requirements around it and the risk assessment that went into being able to grant that particular permit really means that we've got the biosecurity risk managed and we've got an opportunity to really test the things that we need to test with the real deal, if you like, and that that will help our diagnostics as well as out our controls should Xylella ever come into Australia.

I just want to highlight two research projects before I finish, just to show some other work that that's happening. One is around the native insects of Xylella. As I mentioned before, that interaction and, and the importance of the vector for the spread of Xylella is critical.

And we really need to understand whether, well, whether Australia has vectors that could contribute to the spread of Xylella, should it get in here. So as a project that's been looking at its potential for native insects to vector Xylella and the other project I just wanted to highlight was some hyperspectral imaging that's been done out of out of Victoria, where you can look at the, well, the hyper spectrum and get a sense for infected plants or non-infected plants.

And this could provide a tool for and good landscape assessments of whether plants are infected or not. And there's some extra work going on around seeing if we can detect asymptomatic plants as well, which would be good. So, our number one aim is to keep our number one plant pests and our environmental pest out of the country and protect our plant life, protect our ecosystems and our landscape. We work together with preparedness that the future is bright for our Xylella preparedness work.

Because we're working as a system, working with domestic stakeholders to make sure we're not tackling Xylella alone. And I'd like to end by just thanking all the researchers, the policy people and the stakeholders involved in helping with Xylella preparedness domestically. Thank you for your attention.

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