

# Major biosecurity step taken towards protecting Australia's vineyards

WGGA is making the running with its appointment of a specialist to create a blueprint for the biosecurity of the grape industry into the future – and by partnering other players in the same industry to present a united front.

PIERCE'S Disease is just one of at least 15 high priority pests under watch by the grape industry.

Yet the CRC for Plant Biosecurity has recently estimated if it struck the Barossa Valley alone the clean-up bill could stretch to \$4.2 billion – over 20 years.

Wine Grape Growers Australia's (WGGA) national winegrape biosecurity program coordinator Rachel Barratt said that equated to a levy of \$50 per tonne for every tonne crushed in the Valley – for the next two decades.

Pierce's Disease is a bacterial Disease caused by *Xylella fastidiosa*. This bacterium lives in the water-conducting system (xylem) of the grapevine and is spread from plant to plant by sap-feeding insects.

The characteristic symptom of Pierce's Disease in grapevines is leaf scorch. Leaves become yellow around the leaf margins or between the veins. The outer leaf area may dry suddenly while the rest of the leaf remains green. Affected leaves are less vigorous and smaller than healthy leaves.

Leaves dry progressively over a period of days to weeks and concentric zones of discoloured and dead tissue are seen.

The whole leaf may shrivel and drop leaving only the leaf stalk attached.

Diseased stems often mature irregularly, with patches of brown and green tissue.

Flower clusters on infected vines may set berries but these usually dry up before reaching maturity.

## NO CURE

As of today there is no known cure.

Barratt said while this might be an extreme example Pierce's Disease is already widespread in North and Central America and is making inroads into South America.

"Which is why biosecurity is becoming so important today, not just in the wine grape industry but across much of agriculture," she said.

"With increasing volumes of imported produce, much of it from areas with diseases currently unknown in Australia, getting the frontline organised now is crucial.



Rachel Barratt says management mechanisms need to be more effective and this is the biosecurity challenge facing all sectors of agriculture.

"There is also the challenge of climate change, and even so many people moving around within any given industry, including wine, from state to state and country to country the risks of spreading anything are increasing."

Barratt runs the environmental consulting agency Consilius after a successful career, most recently as strategic director for the former SA Department for Water and before that as manager of a variety of SA government projects including Water for Good, Mt Lofty Ranges Watershed Protection Office, and Communications and Community Engagement with the EPA.

She brings with her a Masters in Environmental Management from the University of Adelaide, a degree with a double major in geography and biology and a post graduate diploma in Futures Studies.

Announcing her appointment late last year, WGGA chairman and long-time winegrape grower Vic Patrick said the association had taken a major step towards ensuring the future security of Australia's grapegrowing businesses.

## KEY PROJECTS

By helping to increase the protection of Australian vineyards against biosecurity threats – from both outside our borders as well as potential domestic problems.

Patrick said during the next 12 months Barratt will be responsible for initiating a number of important projects to secure a sound biosecurity management structure in the winegrape growing sector.

In particular, she will be setting up the industry's Winegrape Biosecurity Industry Reference Group to drive industry policy and strategy.

The group will work with other industries and government through agencies such as the National Viticulture Biosecurity Committee and establishing long-term sustainable funding for the function.

Barratt said her role is about working with industry "to develop biosecurity priorities".

To that end she said she hopes to partner other sections of the wider grapegrowing industry to better

long term manage protocols and any problems.

“Management mechanisms need to be more effective and this is the biosecurity challenge facing all sectors of agriculture for all issues,” Barratt added.

“The citrus industry, grains and now Aus-Veg are all going down this path as it gains greater recognition,” she said.

“It has become even more urgent as a result of the changing nature of the relationship between government and industry. Where once a state or federal agriculture department would be expected to manage, and pay for, control program, increasingly that responsibility is being shifted back onto industry.

### WORKING TOGETHER

“If we can’t work together to minimise the risk of any outbreak then it will be the industry, and the grassroots producers, who are going to have to pay.

“We need to have in place a strategic set of information systems, communication protocols and action plans.

“Look at fruit fly. That is a classic example of how well a range of industries, and the wider community, can unite behind a problem and help control it.”

Patrick agreed, noting WGGG was the wine sector signatory to the Emergency Plant Pest Response Deed with Canberra and has now taken a lead role in progressing biosecurity on behalf of all grapegrowers in Australia – including winemakers with their own vineyards.

He also said WGGG has made significant progress despite resource constraints.

“We need the support of the whole sector to make this work – including from our research organisation the Grape and Wine Research Development Corporation (GWRDC), which has identified biosecurity as a priority area in its latest five year plan,” Patrick said.

“It’s a difficult time for growers,” he added, “and the costs of a potential biosecurity event could be the final blow for many growers.

“You only have to look at the Papaya Fruit Fly outbreak in Queensland to see just how much a major pest or disease outbreak can cost an industry.”

The direct costs to growers from the Papaya Fruit Fly experience in the mid-1990s is estimated to have been \$27-\$46 per hectare for each of up to 12 sprays a season and disinfestation of \$79-\$100 per tonne. The costs of disrupted markets were not calculated. Indirect

costs through various agencies were up to \$55 million covering eradication and research to develop control measures. All up, the estimated cost could have been \$160 million.

“We want to make sure we never have an outbreak like that through wise investment in prevention, strategy development and awareness activities,” Patrick said.

WGGG executive director Lawrie Stanford said “Rachel has a very strong background in program development and strategy, and as such, is well-positioned to establish our industry biosecurity arrangements”.

“Rachel has been working as an independent consultant providing strategic and business development advice which is exactly what we need in this role.”

Barratt agreed if the industry gets the job right she will never be heard of again.

“When your biosecurity officer is in the headlines it’s too late, you’ve got a problem,” she said.

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## PIERCE'S DISEASE

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The characteristic symptom of Pierce's Disease in grapevines is leaf scorch. Affected leaves are less vigorous and smaller than healthy leaves.

They dry progressively over a period of days to weeks and concentric zones of discoloured and dead tissue are seen. The whole leaf may shrivel and drop leaving only the leaf stalk attached.

Diseased stems often mature irregularly, with patches of brown and green tissue. Flower clusters on infected vines may set berries but these usually dry up before reaching maturity.

There is no known cure.

### INFECTION AND SEVERITY

Leaf symptoms vary with the grapevine species and cultivar.

Grape varieties such as Pinot Noir and Cabernet Sauvignon show regular zones of progressive leaf margin discolouration and drying. Discolouration and scorching in the variety Thompson Seedless occurs in sectors of the leaf rather than as rings around the margins.

Symptoms are usually more obvious in grapevines already stressed by high temperatures or drought conditions. Climatic differences between regions can affect the timing and severity of the symptoms but not the type of symptoms.



### STAGES OF INFECTION

Pierce's Disease can kill grapevines by blocking the plant's water conducting system. Susceptible grapevine cultivars can die within one to two years of the initial infection.



In the first growing season after being infected only one or two canes may show symptoms. Symptoms gradually spread along the cane from the point of infection to the tip and more slowly towards the base of the cane.

Some or all of the fruit clusters on the infected cane may wilt and dry out.

Tips of canes and roots may die back.

In the following year some canes may fail to bud out. New leaves are yellow and older leaves appear scorched. Infected vines may grow at a normal rate but the quantity of new growth is less than that of healthy vines. In late summer leaf scorching symptoms reappear.

In later years infected grapevines develop late and produce stunted yellow shoots.

### HOSTS

The bacterium *Xylella fastidiosa* affects a wide host range of agricultural and ornamental plants. Some hosts are symptomless.

### INSECT VECTORS

All sucking insects feeding on xylem sap are potential vectors of *Xylella fastidiosa*. An insect vector of major concern is the

glassy-winged sharpshooter (*Homalodisca vitripennis*).

Glassy-winged sharpshooter is an exotic plant pest.

### SPREAD

Pierce's Disease is transmitted by grafting infected propagation material onto healthy rootstocks and by sap-sucking insect vectors.

Pierce's Disease is not transmitted through contaminated pruning equipment or by seed transmission.

### CONTROL

There is no cure for Pierce's Disease.

Prevention is the best option for the management of Pierce's Disease.

Removal of infected vines and vector control are used in California to reduce disease spread.

### ACTIONS TO MINIMISE RISKS

Your vineyard management should include:

- Sourcing propagation material of a known high health status from reliable suppliers.
- Regularly monitoring for glassy-winged sharpshooter.
- Investigating sick vines.
- Practicing on-farm biosecurity to prevent entry, establishment and spread of pests and diseases.
- Ensuring all staff and visitors are instructed in and adhere to your on-farm hygiene practices.
- Keeping records.

Information courtesy of NSW Department of Primary Industry.

