# Orosius argentatus and yanga bush: the missing links in Australian Grapevine Yellows?

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# Australian grapevine yellows (AGY)



Serious disease of grapevines in Australia causing more than 10% yield loss

Phytoplasma pathogen (Phytoplasma australiense)

Known vectors of all other phytoplasmas are phloemfeeding Hemiptera (leafhoppers & planthoppers)

•Overseas there are many similar diseases of grapevines though they are often associated with <u>different</u> pathogens (eg Flavescence dorée in France and Vergilbungskrankheit "VK" in Germany) implies that AGY pathogen and vector are native, -grapevines not native,

-ergo, a native plant is the 'natural' host of AGY phytoplasma

The first author plotted the disease incidence and severity in vineyards in the Loxton district of South Australia and showed distribution of AGY within vineyards in random groups of 2-3 diseased canes and AGY severity and incidence between vineyards shows a correlation with "overflow" areas associated with the irrigation system

Suggests vector does not live in vineyards - that it spreads out from an alternative host in the "overflow" areas

Random distribution of AGY within vineyards indicates alternative host is not present in vineyards

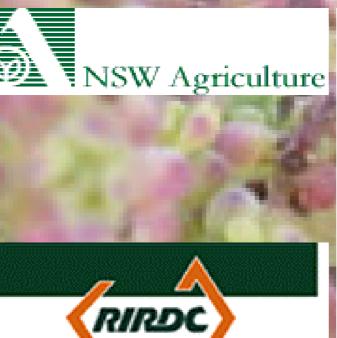
## Hypothesis...

"Overflow" areas harbour a native plant not present in vineyards. This plant hosts a native leaf/planthopper vector of AGY





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#### Following the lead



Leigh J. Pilkington A total of 28 samples was taken and the most common species was the common brown leafhopper Orosius argentatus (Cicadellidae: Deltocephalinae) which was present in 14 of 15 samples swept from yanga bush, Maireana brevifolia (Chenopodiaceae)

> O. argentatus was absent from 13 samples collected from 10 other plant species/communities

O. argentatus was also present in large numbers in a single sweep net sample from yanga bush growing near an AGY affected vineyard near Griffith NSW in June 2002

## A clear association between common brown leafhopper and yanga bush

Much of the yanga bush at Loxton had pink or yellow discolouration which may indicate the presence of a "yellows"-type disease. Five samples of yanga bush tested negative for presence of AGY using primers developed for AGY - more testing needs to be performed

### A working hypothesis

> O. argentatus is a vector for AGY > Yanga bush is the winter host of O. argentatus > Yanga bush is the primary native host of AGY AGY spreads from yanga bush to neighbouring vineyards when *O. argentatus* disperses in Spring

Yanga bush

Orosius argentatus

All authors visited Loxton in May 2002 where sweep net sampling was carried out in vineyards, "overflow" areas and in other areas