

Olive Quick Decline in Italy is associated with unique strain of *Xylella fastidiosa*

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Olive quick decline syndrome (OQDS) is a destructive new disease currently affecting approximately 20,000 acres of olive in southern Italy—an area approximately the size of table olive production in California. Symptoms of OQDS include extensive branch and twig dieback, yellow and brown lesions on leaf tips and margins, vascular discoloration, and subsequent tree mortality (Figure 1). Similar symptoms have been observed in olives in California, but disease incidence appears to be low when compared to Italy. The causal agent(s) of the disease is still unknown. A number of organisms, including fungi and a bacterium, have been isolated from sick trees in Italy and California. The bacterium *Xylella fastidiosa* has been found to infect olive trees in both locations. To date, only strains belonging to *X. fastidiosa* subspecies *multiplex* have been isolated from olives in California. These California strains have limited association with the disease and experimental infections did not cause disease in olive varieties commonly cultivated in California. In Italy, recent publications indicate that strains of the bacterium isolated from the outbreak area are closely related to *X. fastidiosa* subspecies *pauca*, a subspecies group not known to occur in the United States. The OQDS outbreak in Italy marks the first report of the bacterium in the European Union. Research is underway in Italy to evaluate the role of the bacterium in OQDS.

What are the *pauca*, *fastidiosa*, and *multiplex* subspecies?

Strains of the *pauca* subspecies are known to cause citrus variegated chlorosis, a serious disease of citrus reported in Brazil and Argentina. In California, *X. fastidiosa* subspecies *fastidiosa* causes Pierce's Disease on grapevine as well as scorch on almond, whereas *X. fastidiosa* subspecies *multiplex* infects almond but not grapevine. Strains of *fastidiosa* and *multiplex* subspecies do not affect citrus in the United States. Knowledge of the subspecies present in different cropping systems is important because the relative risk to other crops in the landscape depends on the host range of the *X. fastidiosa* subspecies present.

What are the implications of OQDS for California olives?

Olives can be a host for *X. fastidiosa* strains belonging to three subspecies groups: *pauca* in Italy and *multiplex* and *fastidiosa* in California. In addition, species of fungi associated with OQDS are not currently known to occur in California. Therefore, olive growers and landscape managers should report new incidences of extensive dieback or scorch on olives to farm advisors to facilitate early detection of potential pathogen introductions. International movement of plants and plant materials assures a constant flux of organisms across borders, necessitating constant awareness of global trends in pathogen and vector establishment.

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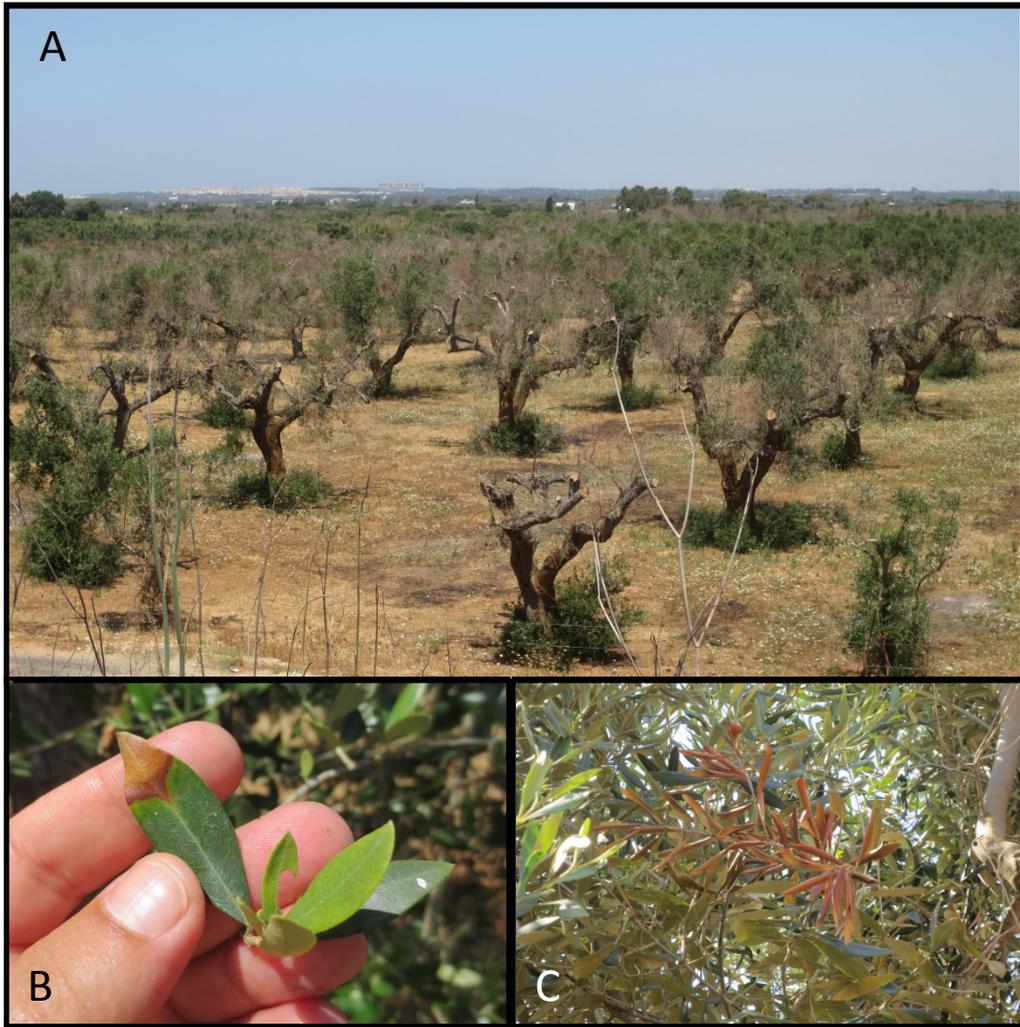


Figure 1. Symptoms of olive quick decline syndrome in Italy include canopy dieback (A), leaf scorch (B), and branch dieback (C). Photos: R. Krugner, USDA-ARS.

Select References

- Cariddi, C., Saponari, M. D. Boscia, M.D., De Stradis, A., Loconsole, G., Nigro, F., Porcelli, F., Potere, O., Martelli, G.P. 2014. Isolation of a *Xylella fastidiosa* strain infecting olive and oleander in Apulia, Italy. *Journal of Plant Pathology* 96:1-5.
- Elbeaino, T., Valentini, F., Abou Kubaa, R., Moubarak, P., Yaseen, T. Digiario, M. 2014. Multilocus sequence typing of *Xylella fastidiosa* isolated from olive affected by "olive quick decline syndrome" in Italy. *Phytopathologica Mediterranea*. 53:533-542.
- Janse, J.D., and Obradovic, A. 2010. *Xylella fastidiosa*: Its biology, diagnosis, control and risks. *Journal of Plant Pathology* 92: S1.35-S1.48.
- Krugner, R., Sisterson, M.S., Chen, J., Stenger, D.C., Johnson, M.W. 2014. Evaluation of olive as a host of *Xylella fastidiosa* and associated sharpshooter vectors. *Plant Disease*. 98: 1186-1193.

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Olive Notes

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