CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Pierce's Disease/Leaf Scorch/Citrus Variegated Chlorosis (*Xylella fastidiosa*)

Pest Fact Sheet

Introduction: *Xylella fastidiosa* (*Xf*) is a phytopathogenic bacterium of major economic significance, infecting citrus, coffee, grape, and olive worldwide. Its host range includes many asymptomatic hosts that serve as silent reservoirs. Native to the Americas, it has spread through the global nursery trade and the dissemination of insect vectors.

Description: *Xf* is a gram-negative, rod-shaped plant pathogenic bacterium within the family Lysobacteriaceae (prev. Xanthomonadaceae). Though it is not strictly an obligate pathogen, its nutritionally fastidious growth requirements make it a difficult organism to work with in culture. Because curative treatment is not an option, prevention, early detection, and containment of outbreaks are critical to mitigate economic losses.

Biology: *Xf* lives and reproduces within plant xylem, restricting water transport, which leads to the typical leaf scorch symptoms. Transmission occurs primarily by xylem feeding sharpshooters and spittlebug insect vectors, though the disease can also be transmitted by grafting. Natural competency and the ability of strains to engage in intersubspecific genetic recombination is an evolutionary driver and contributes to the establishment of new disease outbreaks.

Distribution: Six subspecies have been described or proposed. Subsp. *fastidiosa*, (Pierce's Disease, Almond Leaf Scorch) is endemic to the USA, occurring on grapevines and other hosts. Strains infecting *Prunus dulcis*, are also present in Spain. *S*ubsp. *multiplex* also causes ALS, with similar symptoms on other *Prunus* spp. and landscape/forest trees. It is widely distributed throughout North/South America and is localized in Western Europe. *S*ubsp. *pauca* causes citrus variegated chlorosis (CVC) and coffee leaf scorch in Brazil and Argentina, its native range. It has also been detected from coffee in Costa Rica and has spread to Italy, where it causes olive quick decline, also present in Brazil and Argentina. Subspp. *sandyi*, *tashke*, and *morus* infect oleander, chitalpa, and mulberry, respectively. In Asia, *Xf* is reported from China, Taiwan, and the Middle East, though it is not considered firmly established.







Symptoms caused by *Xf*. Leaf scorch on grape (A; J Viglienzoni, CDFA) and oleander (B; L. Kumagai, CDFA). GWSS adult vector (C; Roy Niswanger, cirrusimage.com).

Economic importance: *Xf* is among the costliest plant pathogens worldwide. Projected damage to the Italian olive industry is estimated to be in the billions. In the Americas, more than a third of Brazil's citrus industry has been affected by CVC. Damage from PD is primarily assessed for the CA industry, where losses have been calculated at over 100 million dollars per year, a figure that does not account for research investment and regulatory costs.

References:

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Prepared by Sebastian Albu (August 2026); CDFA Plant Pest Diagnostic Laboratory