

Elm phloem necrosis phytoplasma

Synonyms

- elm yellows phytoplasma

Plant hosts

The only known hosts are elms (*Ulmus* spp.) including the American species *U. americana*, *U. rubra*, *U. alata*, *U. serotina*, *U. crassifolia*, and the natural hybrid *U. pumila* x *rubra*.

Symptoms

The first foliar symptoms usually develop between mid-July and mid-September in the northeastern USA and include yellowing, epinasty (drooping or downward bending of turgid leaves), and premature casting. Usually all branches on a tree show symptoms at once. Sometimes, however, symptoms develop in just one branch system of a tree, while other parts remain normal for a brief period of time. Bright-yellow leaves may occur together with green ones on a single small branch, but more often all leaves on a branch assume the same yellowish-green to yellow color. Once foliar symptoms appear, root mortality and degeneration of phloem in the roots and base of the tree are extensive. As the disease progresses, the phloem tissue will turn from a very light color to dark brown. Most infected trees die within 1-year after foliar symptoms appear.



Infected phloem tissue
Image courtesy of W.A. Sinclair

Transmission

Elm phloem necrosis phytoplasma are intracellular parasites located in the phloem cells of infected plant hosts. The disease is transmitted by vectors such as leafhoppers and planthoppers that feed on infected phloem. About three weeks later the salivary glands of the vector are infected with the MLO (mycoplasma-like organism) and are capable of transmitting the disease to healthy elms. In international trade, infected plant material could carry the disease or possibly infective vectors. The vector itself would most probably be carried as eggs in the bark of elm plants, although these would not be infective.

Geographic distribution

Canada - Niagara peninsula in Ontario

USA - Alabama, Arkansas, Georgia, Iowa, Illinois, Indiana, Kansas, Kentucky, Massachusetts, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Tennessee, and West Virginia.

Applicable regulations

[603-052-0114](https://www.aphis.usda.gov/aphis/areahandlers.do?method=print&id=603-052-0114), Quarantine; Dutch elm disease and elm yellows phytoplasma