

Dutch Elm Disease (DED)

The Fungi and Insect Vector

Dutch Elm Disease is caused by *Ophiostoma ulmi* or *Ophiostoma novo-ulmi* fungi and spread by the native and European elm bark beetles¹. All elm species are susceptible, though introduced Asiatic elms and resistant varieties are less susceptible².

Signs & Symptoms

- Leaf wilting and premature drop.
- Brown streaking in sapwood.
- Yellowing and browning of foliage, beginning at the canopy or base depending on site of infection.
- Distinctly-shaped galleries under the bark^{1,2}.

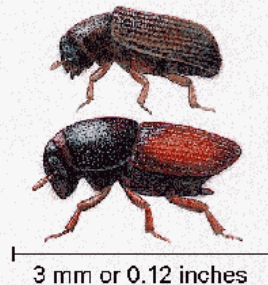
Resistant and Tolerant Elms

Many elm varieties demonstrate resistance or tolerance to DED. These include but are not limited to³:

- Accolade™
- Cathedral
- Discovery
- New Harmony
- Patriot
- Prairie Expedition
- Triumph™



Flagging, a prominent sign of a diseased elm.



The native elm bark beetle.

https://www.na.fs.fed.us/spfo/pubs/howtos/ht_ded/ht_ded.htm

Implications for Minnesota

Dutch Elm Disease poses a significant risk to urban communities; an estimated 1 million elms are in urban communities².

Management & Control Considerations

- Use insecticide to kill insect vectors (elm bark beetles).
- Break root grafts between elms.
- Apply fungicidal treatments to elms.
- Prune branches immediately that display symptoms or signs of infection.
- Plant noted resistant or tolerant elm varieties.
- Immediately remove confirmed infected trees to prevent further infection.

Sources

- 1) https://www.na.fs.fed.us/spfo/pubs/howtos/ht_ded/ht_ded.htm
- 2) <http://www.extension.umn.edu/garden/yard-garden/trees-shrubs/dutch-elm-disease/>
- 3) <http://www.extension.umn.edu/environment/agroforestry/elm-trees.html>