

## Verticillium wilt



### Identification

- On maples and other broadleaf trees.
- Branches die.
- Wood has dark green to dark brown streaks or mottled areas.
- Bark may be loose on the side of the tree with the dead branches.

### Control

- Chemical controls are not effective.
- Remove the tree or parts of the tree as they die.
- DO NOT use chips made from branches or trees killed by Verticillium wilt because of the high risk of spreading the fungal pathogen through the chips.
- Plant trees known to be resistant.
- Improve tree health by mulching and watering about 1 inch per week. Avoid overwatering.

## Wetwood (Slime flux)



### Identification

- On elm, cottonwood and other broadleaf trees.
- Large whitish streaks appear below pruning cuts or other areas where the bark is injured.
- Liquid oozes from the wound or bark opening.

### Control

- No controls are effective.
- Improve tree health by mulching and watering about 1 inch per week. Avoid overwatering.

## Cankers



### Identification

- On cottonwood, honeylocust, willow, elm and many other broadleaf trees.
- Dead areas of bark appear, often around pruning cuts or where branches are attached.

### Control

- Chemical controls are not effective.
- Improve tree health by mulching and watering.
- Avoid injuries that weaken the tree or create wounds through which canker fungi can enter.

### \* Always follow pesticide label instructions.

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Photo credit: Dutch elm disease #1: Joseph O'Brien, USDA Forest Service, [www.forestryimages.org](http://www.forestryimages.org)

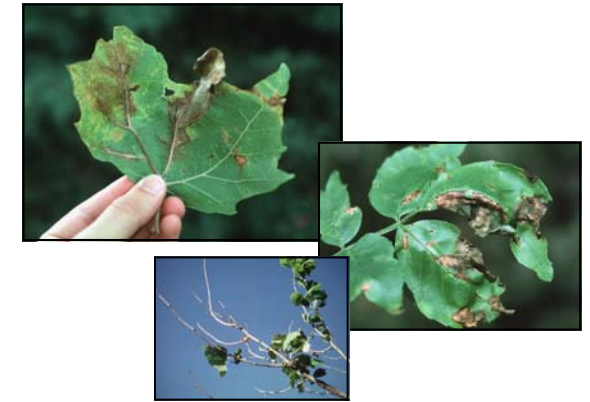


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# Diseases of Broadleaf Trees

## Anthracnose



### Identification

- On sycamore, ash, maple, oak and walnut.
- Leaf spots and blotches appear in the spring (later for walnut), often following leaf veins.
- Leaves drop early.
- Dead shoots may appear on sycamore and oak.

### Control

- For ash, maple and walnut, a control is usually not needed. Trees typically recover.
- For sycamore and oak, a control may be desired if shoot death is severe.
- Spray foliage with chlorothalonil, thiophanate-methyl or labeled copper fungicide\* at budbreak and repeat 2-3 times every 7-14 days.
- Improve tree health by mulching and watering about 1 inch per week. Avoid overwatering.

## Apple scab



### Identification

- On crabapple and apple.
- Dark spots appear in leaves, often with feathery margins and along leaf veins.
- Leaves turn yellow and drop from the tree.

### Control

- Spray with chlorothalonil, thiophanate-methyl, myclobutanil, mancozeb or propiconazole\* at 7- to 14-day intervals from prebloom (April) through rainy periods.
- Some chemicals cannot be used on trees grown for fruit production.

## Cedar-apple rust



### Identification

- On crabapple, apple, juniper and redcedar.
- Orange spots appear on the upper leaf surface.
- Raised spots appear on the lower leaf surface.
- Ball-shaped woody growths (galls) or orange gelatinous masses appear on junipers and redcedars.

### Control

- Spray with a fungicide containing chlorothalonil, thiophanate-methyl, myclobutanil, mancozeb or propiconazole\* as flower buds break, at petal drop and 3 or 4 additional times at 7- to 10-day intervals.
- Some chemicals cannot be used on trees grown for fruit production.

## Fire blight



### Identification

- Mostly on apple, crabapple, pear and mountain-ash.
- Shoots and leaves droop and turn dark.

### Control

- Prune out dead branches 8-12 inches down from diseased tissue.
- Sterilize pruning tools after each cut with a 70% alcohol solution.
- Spray with streptomycin\* at pink stage (3 to 4 days before blossoms open—usually mid April) and every 5 to 7 days until petal drop.

## Dutch elm disease



### Identification

- On American elm.
- Leaves turn yellow, then brown.
- Branches die, then the whole tree dies.
- Brown to black streaks appear in the wood.

### Control

- Trunk inject with thiabendazole or propiconazole\* as soon as or before symptoms begin appearing (when 5% or less of the crown is affected).

## Oak wilt



### Identification

- Mostly on red and bur oak.
- Red oaks often die within 2 to 6 weeks.
- Bur oaks decline and may die, especially if stressed by changes in site conditions.
- Leaves turn brown.
- Branches die, then whole tree dies.
- Brown to black streaks appear in the wood.

### Control

- For red oak, trunk inject with propiconazole as soon as, or before, symptoms begin appearing.
- For bur oak, improve tree health by mulching with wood or bark chips, watering about 1 inch per week, avoiding overwatering and by trunk injecting with propiconazole,\* if advised, to quicken the recovery.

## Tubakia leaf spot



### Identification

- Mostly on bur oak.
- Brown blotches on leaves, often along veins.
- Affected leaves may drop from the tree.
- Young shoots may die.
- Symptoms are more extensive in lower branches than in higher branches.

### Control

- Control is rarely needed.
- Spray with propiconazole or mancozeb\* at budbreak (April) and repeat 2 times at 10- to 14-day intervals.