Evergreen Diseases

Purdue University Cooperative Extension Service
Evergreen Diseases

Ornamental evergreens are today among the most popular of all home landscape plantings. And understandably so, for evergreens, with their varied shapes and sizes, provide that needed contrast with annual flowers and add a welcomed touch of green during the dormant season.

Evergreen trees and shrubs are generally expensive and slow-growing. That's why it's important for the plantings to be kept vigorous and healthy. While many evergreens are well adapted to Indiana, they are subject to numerous diseases which can spoil their appearance or even kill them.

This publication deals with such disease problems, their symptoms and suggested control.

NATURAL BROWNING OF EVERGREEN FOLIAGE

Evergreens stay "ever green" simply because they don't lose all their foliage at one time. However, browning and dropping-off of leaves or needles is part of an evergreen's natural cycle, and all species will lose some foliage each fall only to replace it the following spring.

How long certain evergreens retain their leaves depends, of course, on the species. Laurel, holly, white pine, and arbor vitae, for instance, drop one-year-old leaves; while spruce, fir, hemlock, yew, and 2- or 3-needle pines may retain their needles for as long as 5 years. Holly differs even further in that its old leaves don't drop off until spring or early summer.

For the first year or two after planting, the natural annual browning and dropping of evergreen needles or leaves is quite noticeable. After that, it goes relatively unnoticed because new foliage at the tips of the branches conceals the interior foliage that is ready to drop. Severe winters, dry summers, and heavy poorly drained soils, however, will cause an excessive amount of dying needles.

WINTER INJURY AND DROUGHT DAMAGE TO EVERGREENS

Both of these problems are difficult to distinguish from true plant diseases. Either one may cause evergreen branches and twigs to die back, especially red cedar, arbor vitae, pfizer juniper, andorra juniper and prostrate juniper. Deciduous shrubs, such as spiraea and privet, may also be damaged.

In the spring, winter injured trees and shrubs will appear brown and dried out at the tips of the branches and twigs, and will fail to leaf-out normally. In some cases, they may start to leaf out but then die back again within 3 or 4 weeks. The bark of the
branches may even be killed. Cases of winter injury and drought damage sometimes don't show up until a year or more after the damage has occurred.

Control: Of course, we cannot control weather to prevent winter injury and drought damage. However, we can observe these simple precautions to reduce the possibility of such conditions occurring:

1. Plant evergreen shrubs and trees only in well-drained soil.

2. Following a dry summer and fall, thoroughly soak the soil around trees and shrubs before freezing weather sets in.

3. Mulch around evergreens with leaf mold, peat moss, or similar material to hold the moisture in during the winter.

4. Fertilize the plants and aerate the soil around them to increase root growth and promote deeper rooting. Shallow spading around the plants in the fall will also improve aeration and water drainage.

5. If winter injury does occur, remove dead branches and twigs as soon as they become noticeable in the spring. A complete fertilizer (containing nitrogen, phosphorous, and potash) applied in late March or April should help revive those branches and twigs that are damaged but not killed.

6. Wrap the base of young, smooth-barked trees to a height of 3 or 4 feet with burlap, building paper, or nursery paper in the fall to reduce the dangers of winter injury.

CYTOSPORA CANKER OF SPRUCE

Cytospora canker is common to Norway and blue spruce but can also attack laurel, poplar and willow. The disease is characterized by development of cankers on the lower part of the tree. These cankers discharge a gum which dries to a grayish white color. The lower branches usually die first and later the entire tree, especially if the cankers girdle the main trunk.

"Spruce canker" is caused by a fungus that produces spores from flask-shaped structures embedded in the cankered areas. Spores released from these structures that fall into wounds in the bark may develop and cause new cankers.

Control: The following suggestions are made as a way to limit the spread of cytospora canker of spruce:

1. Prune out cankered branches as soon as you notice them. Be sure to cut them off several inches below the canker or at the main trunk if the entire branch is dying.

2. Avoid unnecessary wounding of the tree.

3. Keep all trees that are susceptible to the disease vigorous and healthy by watering often during dry periods and by fertilizing properly.

4. Starting before the rainy periods in the spring, apply two sprays of either 8-8-100 bordeaux mixture or phenyl mercury at 10-day intervals. See Table 1 for details.

NEEDLE CAST OF PINE

When needles in the interior part of a pine tree die and drop off, this is a natural shedding of leaves. However, if needles on the outside of a pine die and drop, chances are a disease is responsible.

One such disease, especially common on Scotch, red and white pine, is needle cast caused by any of several fungi. Infection usually occurs in May or June and first shows up as a reddish or brown discoloration of a
portion of each infected needle. Small, black, raised fruiting bodies of the fungi are usually found on these needles late in the season. Loss of needles due to needle cast may also occur in late summer or early fall. However, this defoliation will most likely be associated with trees weakened by drought, winter injury, poor soil and/or low fertility.

Control: The extent of damage caused by needle cast can be reduced by following these practices:

1. Plant only those pine species that are suited to your region.

2. Plant the trees only in well-drained soils.

3. Fertilize adequately to maintain vigorous growth.

4. Prune out all dead or dying branches in the fall.

5. If the disease is serious, starting when growth begins in the spring, apply two sprays of either 8-8-100 bordeaux mixture or phenyl mercury at 10-day intervals. See Table 1 for details.

NEEDLE BLIGHT OF PINE

Needle blight, a disease of white pine, first appears in late spring to mid-summer. The current year’s needles start to turn brown and die back from their tips downward. Affected needles are usually stunted and often fall from the tree. While the cause of needle blight is not known, it does seem to be associated with poorly-developed or mechanically-injured root systems and poor soil conditions.

Control: Damage from needle blight can be reduced by following the same practices as suggested for needle cast.

TIP BLIGHT OF PINE

This fungus disease is common to Austrian, red, Scotch, and mugho pine. Dying of the needles and wood at the tips of the twigs indicates tip blight, provided no evidence of insect borers is found.

Control: Same as for needle cast.

CEDAR-APPLE RUST OF JUNIPER

Cedar-apple rust is a fungus disease that causes brown, irregular corky galls ("cedar apples") to form on the leaves and twigs of red cedars. Generally, they go unnoticed until the second spring after they first appear. At this time, they develop bright orange, jelly-like "spore horns", which are often mistaken for cedar blossoms. These horns produce rust spores that infect the leaves and fruit of apple and hawthorn trees, causing orange, pin-cushion-like spots. Spores produced from these spots, in turn, reinfect the junipers in late summer.

Control: The following are recommended practices for holding cedar-apple rust disease in check:

1. Prune out the gall before the orange spore horns are formed.

2. If infected galls are not pruned out, spray them just as the spore horns are emerging with either Acti-dione or Acti-spray diluted to 100 parts per million. This is done by dissolving one 380 milligram tablet in 2 gallons of water.

3. To prevent new infections, spray the junipers in mid-June, mid-July, mid-August, and mid-September with either ferbam or zineb. See Table 1 for details.
TWIG BLIGHT OF JUNIPER

A browning and dying back of twigs of junipers may indicate the presence of a fungus disease called twig blight. Both new growth and older twigs could be affected. Close look at the blighted areas will reveal small, black, pimple-like fruiting bodies of the fungus. During wet periods in the spring, spores ooze from these fruiting bodies in long threads and are carried by wind, rain or insects to infect other junipers.

Control: Juniper twig blight may be controlled by observing these suggestions:

1. Prune out and destroy diseased twigs and branches.

2. When new growth starts in the spring, apply two sprays of either 8-8-100 bordeaux mixture or phenyl mercury at 10-day intervals. See Table 1 for details.

PROBLEMS OF THE TAXUS YEW

In recent years, the taxus yew has become a very popular home landscape evergreen. Though it is a relatively disease-free plant, it will react to unfavorable locations and conditions.

For instance, the taxus will not do well in wet spots or in poorly-drained soil, and therefore, should never be planted near rainspouts. Nor will it thrive in acid soils under pH 6.0. It also reacts to winter injury in that the tips of injured branches will often die back the following summer.

Of the fungus diseases of yews, only a tip blight caused by the fungus Phomopsis seems to give any trouble. In this case, the tips of infected branches turn brown and die. Suggested control is the same as for twig blight of juniper.

Like other evergreens, the yew loses some of its inside leaves and needles every year. Then in the late summer or early fall, any needles that are 3 to 5 years old suddenly turn yellow but remain on the plant for several weeks before dropping off. This is a natural process and is no cause for alarm.

FUNGICIDES FOR EVERGREEN DISEASE CONTROL

Fungicides are chemicals used for controlling plant diseases. They will not cure sick plants, nor are they panaceas for all the ills of growing plants. But rather most fungicides are protectants that can prevent disease infection if applied before the plants get sick, if applied often enough, and if applied at the right time, in the right way using the right amounts.

Here is a list of fungicides currently recommended for the control of common diseases of evergreens. Information as to when, where, and how they are to be applied; what they do or don’t control; and how they are to be safely handled is given on the package or container label. Read it and follow it. Play safe; don’t be careless.

<table>
<thead>
<tr>
<th>Material</th>
<th>Amount to use in 1 gallon</th>
<th>Amount to use in 50 gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actidione PM</td>
<td>5 Tbs.*</td>
<td>3 lbs.</td>
</tr>
<tr>
<td>Bordeaux mixture**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper sulfate</td>
<td>2 1/2 Tbs.</td>
<td>4 lbs.</td>
</tr>
<tr>
<td>Spray limestone</td>
<td>4 Tbs.</td>
<td>4 lbs.</td>
</tr>
<tr>
<td>Captain 50%, WP*</td>
<td>1 1/2 Tbs.</td>
<td>1 lb.</td>
</tr>
<tr>
<td>Ferbam 76%, WP</td>
<td>2 Tbs.</td>
<td>2 lbs.</td>
</tr>
<tr>
<td>Fixed copper 50%, WP</td>
<td>2 Tbs.</td>
<td>4 lbs.</td>
</tr>
<tr>
<td>Karathane 22.5% WP</td>
<td>1 tsp.*</td>
<td>1/2 lb.</td>
</tr>
<tr>
<td>Karathane liquid</td>
<td>1/4 tsp.</td>
<td>2 oz.</td>
</tr>
<tr>
<td>Liquid lime-sulfur</td>
<td>5 Tbs.</td>
<td>2 gal.</td>
</tr>
<tr>
<td>Phalan 75%, WP</td>
<td>1 1/2 Tbs.</td>
<td>1 1/2 lbs.</td>
</tr>
<tr>
<td>Puratized (phenyl mercury)**</td>
<td>1 tsp.</td>
<td>1 pt.</td>
</tr>
<tr>
<td>Terrachlor 75%, WP</td>
<td>1 Tbs.</td>
<td>1 lb.</td>
</tr>
<tr>
<td>Thiram 65%, WP</td>
<td>2 tsp.</td>
<td>1 lb.</td>
</tr>
<tr>
<td>Wettable sulfur 95%, WP</td>
<td>1 Tbs.</td>
<td>2 lbs.</td>
</tr>
<tr>
<td>Zinc 65-75%, WP</td>
<td>1 1/3 Tbs.</td>
<td>1 1/2 lbs.</td>
</tr>
</tbody>
</table>

*WP = wettable powder; Tbs. = tablespoon; tsp. = teaspoon.
**Bordeaux is a mixture of copper sulfate and spray lime in water. An 8-8-100 mixture means 8 lbs. copper sulfate plus 8 lbs. spray lime in 100 gals. water.
***For proper rates using other mercury formulations (TAG, phix, Coroxene, etc.), see package directions.