

EVERGREEN TREE CARE

GOOD CARE PRACTICE:

Trees are the most imposing feature in your landscape. They may grow quite large and live quite long. They help moderate hot season temperatures near your home, provide shade and cool areas, absorb sound and rain, give privacy, prevent erosion, filter pollutants and provide oxygen. They also add character and value to your home as well as providing a nurturing area for beneficial insects, birds and small animals. The benefits of trees on your property far outweigh the possibility of biotic (caused by living things, i.e., insects) or abiotic (caused by non-living things, i.e., weather) problems a tree might have during its lifetime.

The most effective means of control of biotic (i.e., disease, insects) and abiotic (i.e., physical and chemical) damage is to prevent it from occurring. Choosing the right tree for the location with the proper growth conditions is the first step. After that, the risk of other problems can be reduced with a relatively simple good care program with an emphasis on prevention. Before you plant, consider that the quality of soil in which a tree grows is one of the most important factors affecting tree health. Soil conditions, including the amount of organic matter, depth of topsoil, soil structure and type, pH (acidity/alkalinity), nutritional status, aeration and drainage all have a direct impact on tree health. Almost every tree needs at least 40cm of well-drained soil. Roots growing in poorly drained soil are deficient in oxygen and have limited nutrient uptake. If soil saturation with water is continuous, root hairs die and the tree becomes an easy target for root-rot organisms. Needles will turn yellow and drop prematurely. Trees growing in gravelly or sandy soils that do not retain adequate soil moisture may show symptoms of stress during hot, dry periods. Lack of moisture is also a problem where soils are severely compacted or have high clay content, as the water tends to run off the surface horizontally instead of percolating down through the soil, into the root zone. Winter drying of evergreens is characterized by needle browning, particularly noticeable on one side of the plant by early spring, and is primarily caused by low moisture level. Evergreens benefit greatly from a good

soaking in late fall, just before frost sets in. Keep in mind that no good care program will overcome poor site conditions.

The evergreens, like other plants, may be subject to disease or insect problems over their lifetime, although you may never experience a problem on your property. Many disease and insect problems tend to be localized or cyclic in nature. Spruce Budworm is a good example of a cyclic problem in our region.

Sections 1 and 2 below, cover the most environmentally friendly means to prevent problems without resorting to elemental or synthetic chemical control. The downside of synthetic chemical control (primarily insecticides) is that it will affect more than the bad guys. Keep in mind that about 90% of the bugs in your landscape are good guys, or are at least neutral and will also suffer loss, which may be your loss as well. Sometimes there is no reasonable alternative, but as a principle, we advocate that synthetic chemical control should be the last resort.

1) The easiest care practice is to provide good nutrient supply to your plant every year or two. A healthy plant is better able to withstand insect and disease predation. The best nutrients are from good organic compost spread under the tree from the trunk to the drip zone. Stronger compost with nitrogen (the first number in the NPK series) of 1.0 or greater is most effective for a top-dressing. Compost will provide all the nutrients the plant needs for good growth, as well as improving soil structure, which is very beneficial to plant health and growth. Synthetic fertilizer does not improve soil structure and should be used with great care, as an excess of granular or liquid fertilizer may be detrimental to the plant. Ensure directions are followed carefully when using granular or liquid synthetic fertilizers and remember that less is better than more. More detailed information is available from Scott's Nursery's nationally certified staff.

2) A good clean-up in of needles in the fall and control of grass height, spring to fall, tends to help prevent both fungus and insect problems. Good culture practice can help prevent entry of fungus and insects via wounds. Mulch should not be placed within 6-8cm of the trunk of a tree as it provides a haven for predatory insects and may cause damage to the collar (crown) section of the tree. There are a number of reasonably benign methods to reduce harmful insect

damage. Biofungicides are becoming more common in the commercial plant world and are starting to enter the marketplace as an alternative to synthetic chemical and elemental fungal control. Some biofungicides are now available for small plants but none are currently practical for large trees. A biological insecticide (utilizing *Bacillus thuringiensis*) such as BTK is available for use on caterpillars.

3) A preventative spray program may be beneficial if you or others in your vicinity are experiencing significant disease or insect problems. It is strongly recommended that you read all label information and follow the recommended safety and application guidelines for any product used in pest control. There are a number of pests that can affect evergreen trees such as a variety of fungi (needle cast, tip blight, etc.) and insects (aphids and assorted sawflies, weevils and mites). But, don't panic, most of the above mentioned are relatively uncommon on trees used for landscape in our region. Keep in mind that insect and plant pathogen problems affect woodland trees much more readily than landscape trees. The most common problems that nursery clients have consulted about in recent years are listed in the disease and insect treatment section below.

4) Pictures of a problem, as well as samples of affected needles and branches may greatly assist in possible identification of a cause. Please secure samples brought to the nursery for insect or disease identification in a clear plastic bag with a contact name and phone number attached and identification, whenever possible, of the tree species and details of the problem.

ELEMENTAL, BIOLOGICAL AND SYNTHETIC CHEMICAL CONTROL OF INSECTS AND PLANT PATHOGENS

As mentioned above, sometimes there is no reasonable alternative but to resort to elemental (i.e., sulphur, copper), biological (i.e., BTK) or synthetic chemical (i.e., Pyrethrin), products for prevention or control of plant pests. It is most important to read the label for the elemental, biological or synthetic chemical product you are considering and carefully follow the safety and application directions. The first premise to be considered is that a few pests, especially some fungi, once established, are not likely controllable by the householder with any

product available in the marketplace. In this situation, if the infestation is likely to result in, or results in, the loss of the tree; replacement with an alternative resistant species may be prudent unless you are prepared to maintain a preventive spray program with the same replacement variety.

In most cases it is recommended that the householder considers spraying the most benign product that may be effective in control and going up scale as necessary. An example of scaling up for an insect problem would be starting with agricultural insecticidal soap (fatty acids) as the most benign, followed by Pyrethrins (first derived from the natural insecticidal properties of the chrysanthemum), Permethrin (derived from Pyrethrin), Sevin (Carbaryl), and Malathion. Both Sevin and Malathion are cholinesterase inhibitors. With respect to fungicides; sulphur, lime sulphur and copper sulfate are relatively benign elemental products that are most often used to control or prevent fungal problems in trees. Copper sulfate cannot be routinely used in prevention or control as an accumulation of copper in the soil may also be detrimental to the tree. Keep in mind that it is usually more practical to be preventative as many plant pathogen problems, once started, may be difficult or impossible to eradicate.

CYPRESS FAMILY (CUPRESSACEAE)

CEDAR (ARBORVITAE), JUNIPER, CYPRESS

This is a complex family of evergreens and the third largest worldwide. It consists of a variety of plants; groundcover, shrub and tree size, used for landscape in both full sun and part shade. As a group, they will tolerate a wide variety of soil conditions but do require well-drained soil. Most are considered low maintenance plants, and as a group, require very little pruning. All members of this family will benefit from some good organic compost (about 30%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth.

CEDAR (ARBORVITAE)

This is a large family of shrubs and trees consisting mostly of *Thuja occidentalis* and its cultivars. About 15-20 varieties are commonly found in the nursery trade from small globes to mature trees eight meters in height. They have scaly leaves with fan-like foliage that is aromatic when crushed. They can be lightly pruned to correct errant branches or to shape, but should not be pruned to bare wood as older plants will not re-sprout. Small plants may be pruned harder. Some leaf shedding is a natural process that may take place over one to three years. It is usually finished in a few weeks unless the plant has been stressed by drought, excessive shading, or insect/mite infestation.

APHIDS: Needles turn brown and twigs and branches may die. A cottony or sticky substance may be noted on the needles. Small green or brown soft bodied insects may be found on the plant. The presence of ants can indicate an infestation as the ants are drawn to the excess sap caused by the aphids. Most trees will recover if the aphid population declines but it may take several years, especially if the plant is deficient in nutrients. Damage tends to occur most in early spring. A pressurized sprayer may be used to lightly wet the tree with a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, in late April and early May. Two or three applications several days apart may be necessary to be effective. Inspect carefully before continued spraying.

LEAFMINER: Some leaf tips turn yellow, then brown and die. Examination of the yellow leaf interior may reveal a very small caterpillar. Damage appears most severely in shady areas. Plants may lose considerable foliage and still survive. Caterpillars inside the leaves are difficult to eradicate. Pruning infected tips is helpful although some green twigs must be left for re-sprouting. A spray in early spring when the moths are laying eggs or in late July when the eggs are hatching is most effective. A pressurized sprayer may be used to lightly wet the tree with a mild insecticide such as Pyrethrum. Two or three applications several days apart may be necessary to be effective.

JUNIPER

Junipers are in the genus *Juniperus* of the Cypress Family consisting of fifty or more species. The species and cultivars (about 35) in the nursery trade vary from low spreading ground covers to trees of six meters in height. Most Junipers will produce berry-like structures which are usually blue and may be aromatic. Most have scaly leaves but some can produce needle-like structures. Junipers prefer full sun and do best in sandy, well-drained soil but will tolerate most garden soils. Older Junipers will not sprout new growth from older wood so never prune to bare wood. It is best to shear young plants lightly and regularly to produce denser growth and form.

PHOMOPSIS TWIG BLIGHT: This is most noticeable in the spring when the fungus *Phomopsis juniperovora* causes some branches to gradually die. It is often characterized by small black dots on the dead needles and stems. It differs from drought symptoms by a sharp division between healthy and diseased tissue. The fungus only attacks young, new growth and is more likely to affect stressed plants. Diseased twigs and branches are best removed in dry weather and destroyed. It is important to sanitize pruners between cuts to prevent spread of the fungus. If the infestation is diagnosed, a pressurized sprayer may be used to lightly wet the tree with two or three applications of copper-sulfate (Bordo) at bud-break and again in 10-12 days. Overuse of copper-sulfate is not recommended due to the potential for copper to accumulate in soil and result in copper toxicity to plants. Garden sulphur may also be used when new growth flushes or after pruning. In addition to spraying, it is recommended that fallen needles be cleaned up and grass be mowed short to minimize humidity. Maintaining appropriate nutrient and moisture levels is also beneficial.

MITES: Spider Mite damage typically starts in the cool weather of spring. The affected needles may be dirty and fine webbing may be noticed on the tree. Needles may appear stippled and some irregular browning of needles may be noted. Large mite infestations may be fatal to young trees and large trees may succumb after several years of infestation. A pressurized sprayer may be used to lightly wet the tree with garden sulphur or a mild insecticide, such as insecticidal

soap, or one containing Pyrethrins, in late May and June. Two or three applications several days apart may be necessary to be effective.

CEDAR-APPLE RUST: This disease is caused by a fungus, *Gymnosporangium juniper-virginianae* that infects both juniper and apple trees. It is relatively uncommon in our region, but is more likely to occur where juniper and apple trees are in close proximity. It tends to go unnoticed during the first year of infection as only small swellings appear on the needles, but is very apparent in the second year as large orange jelly-like forms are produced. Affected twigs and branches may die. When noticed, the galls should be removed and destroyed. Pruners should be sanitized between cuts. As spores are released in mid-summer, it may be beneficial to spray the affected juniper and apple trees as well as any in close proximity, with Bordo (copper-sulfate). A pressurized sprayer may be used to lightly wet the tree with two or three applications of Bordo in late July and August. In addition to spraying, it is recommended that fallen needles be cleaned up and grass be mowed short to minimize humidity. Provision of good nutrition is very important.

CYPRESS (FALSE CYPRESS)

The *Chamaecyparis* genus is often referred to as False Cypress to distinguish it from related plants in the cypress family, Cupressaceae. They vary from shrubs to medium or large evergreen trees. The Weeping Nootka, only introduced recently in our region, may reach about 11 meters at full growth. It carries its long, pendulant foliage in flat sprays. The leaves are of two types, needle-like juvenile leaves on young seedlings up to a year old, and scale-like adult leaves. It prefers areas of high humidity and moist but well-drained soil conditions. Our staff has not encountered any insect or disease problems to date in our region but, like other plants, they are known to be susceptible to insects such as aphids and mites under suitable conditions. Good care practice is important in prevention of disease and insects for all plants. See the Good Care Practice section for more detailed information.

FIR (ABIES)

Virgil (70-19 B.C.) was the first to use the Latin word abies to refer to wood, which is now used to describe the Firs from the family Pinaceae. The common name Fir is derived from Old Norse. Only a few of the fifty or more species and their cultivars are used in landscaping. Those used in the landscape in this region vary from the Balsam fir that can grow 20 meters. The cultivars may vary in form and color, and although often difficult to locate, may provide variety not available from the species. The Balsam Fir tree can dominate a small landscape, so is best used on the side or back of properties in an accent or screening role. Most firs would be considered slow growing and prefer moist, well-drained, slightly acidic soil. They will tolerate some light shade, especially when young, but do best in full sun. Pruning should be minimized as they seldom produce new growth. They do not seem to be subject to disease or insect problems in landscape situations as opposed to natural habitat.

Like many other plants, fir will benefit from some good organic compost (about 30%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth. More detailed information on planting and care is available from Scott's Nursery staff.

A preventative spray program may be beneficial if you or others in your vicinity are experiencing disease or insect problems. There are a number of pests that can affect the fir family such as canker, needle cast, rust, aphids, budworm, and mites. Most of the above mentioned pests are relatively uncommon on fir used for landscape in our region. Some of the most common problems are listed below.

APHIDS: Aphid infestations of fir are mostly caused by the Balsam Twig Aphid, *Mindarus abietinus*, a tiny green to blue-gray soft-bodied insect. Infestations are relatively uncommon and somewhat weather dependent. Warm, moist weather promotes generation, and the aphids are often more prevalent the following spring. On fir trees, it is typical of many young needles to curl and expose the lighter underside. Needles may also be gummy or covered with a black sooty mold. Most trees will recover if the aphid population declines but it may take

several years, especially if the plant is nutrient deficient. Damage tends to occur in early spring. A pressurized sprayer may be used to lightly wet the tree with a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, in late April and early May. Two or three applications several days apart may be necessary to be effective.

MITES: The spruce spider mite, *Oligonychus ununguis*, attacks fir as well as other conifers. Most damage typically occurs in May and June. Mites suck the sap from the underside of the needles and cause some irregular yellowing and a stippled appearance on the affected needles. A webby material may be apparent on some twigs and branches. Large mite infestations may be fatal to young trees and large trees may succumb after several years of infestation. A pressurized sprayer may be used to lightly wet the tree with garden sulphur or a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, in early spring. Several applications from 7-10 days apart may be necessary to be effective. A fall spray may also be required.

NEEDLE CAST: We are seeing an increase in needle cast problems in this region over the past few years. Needle cast is a term used to describe the shedding of needles by a conifer, and to date appears more common in conifers such as pine and spruce, but is known to affect fir. Affected needles tend to turn brown or yellow and drop, while twigs dieback. Black, fungal fruiting bodies can be found on dying needles and twigs. Affected twigs should be pruned where possible in dry weather and destroyed. A pruning sanitizer for use between cuts is recommended. The only non-commercial product available to combat active needle cast is Bordo (copper sulfate) powder. A pressurized sprayer may be used to lightly wet the tree with two or three applications of copper-sulfate about 10 days apart in late May and June. In addition to spraying, it is recommended that fallen needles be cleaned up and grass be mowed short to minimize humidity. A good ground cleanup and appropriate nutrient supply combined with one or two sprays of garden sulphur in early to mid-spring may be beneficial in prevention of needle cast, as well as mites.

SPRUCE BUDWORM: Although Spruce Budworm can be a very destructive pest of conifers, (especially fir and spruce), it is cyclic, and comes and goes in epidemics, ten or more years apart. To our knowledge, it is not a concern at present. Control methods are similar to other insect infestations. If you suspect a problem contact Scott's Nursery staff for more detailed information.

HEMLOCK (TSUGA)

The species word Tsuga is Japanese and hemlock is from the Old English hymlice or hemlic, of unknown origin. There are nine or ten species of hemlock found in the family Pinaceae and a number of cultivars. The native species, *Tsuga Canadensis*, and its cultivars are most common in our region. It forms an outstanding ornamental tree and can dominate a small landscape, so is best used on the side or back of properties in an accent or screening role. The Eastern Hemlock tree has a conical form with graceful branches. It will handle moderate shade and does best in moist, well-drained soils. It prefers a richer soil than most conifers and responds well to good humus levels. It is a slow growing but long lived tree and can grow to 20 meters. Dwarf and weeping forms are also used in landscaping and their bushy growth gives four season appeal. The species makes one of the best evergreen hedges, graceful and easily shaped. It is fast growing when young, with soft blue-green, dense foliage. Like many other plants, hemlock will benefit from some good organic compost (about 40%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth. Hemlock is prone to sun scorch in very hot weather when temperatures approach 36°C for extended periods. Trees and shrubs should be watered deeply during periods of hot weather and drought to mitigate damage to foliage.

INSECTS AND DISEASE: Until recently, eastern hemlock was thought of as being quite free of insect pests and diseases. We have had no inquiries at the nursery about disease or insect problems in recent years. Although several fungi are known to attack hemlock, the incidence appears rare in our region. As for insects, the Hemlock Looper, *Lambdina fiscellaria*, was responsible for an outbreak in 1989 but we are not aware of recent cases. It appears to be cyclic in nature,

similar to the Spruce Budworm. Hemlock in the Eastern United States has been affected by the Hemlock Woolly Adelgid, *Adelges tsugae*, in recent years, and infestation was reported in Maine in 2005. This pest is an aphid-like insect that feeds by sucking sap and is capable of destroying a tree after a few years of infestation.

PINES (PINUS)

Pines are evergreen, coniferous, resinous trees (or shrubs) growing from 3-80m tall. Their name is derived from the Latin *Pinus* which is also the name used for the genus. Pines tolerate a wide variety of soil types but prefer a sandy soil. They require at least a half meter of well-drained soil and full sun to thrive. There are at least 170 varieties and sub-species of pine worldwide. Only a few species and cultivars are commonly found in the nursery trade. Most pines, including White Pine, should not be used in proximity to salt from roads or seashore as they are not salt tolerant. Austrian pine is salt tolerant and is a better choice where salt drift or spray is possible.

Large pine trees can dominate a small landscape, so are best used on the side or back of properties in an accent or screening role. Young trees should have at least half the candle (new growth) removed each year, before the needles emerge, if a full and bushy effect is desired. Remember, that it is characteristic of most pines to shed about 20% of reddish-brown needles in the fall.

Like many other plants, pine will benefit from some good organic compost (about 30%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth.

A preventative spray program may be beneficial if you or others in your vicinity are experiencing disease or insect problems. There are a number of pests that can affect the pine family such as tip blight, needle cast, pine bark beetles, borers, mites, rust, scale, sawfly and assorted aphids and moths. Most of the above mentioned pests are relatively uncommon on pine used for landscape in our region. The most common problems that nursery clients have consulted about in recent years are listed below.

SAWFLIES: Several sawflies attack the Pine family. Most common are caterpillars of the Pine Sawfly which are about 2cm long and have a black head with a green-yellow body. They also exhibit a double brown stripe down their back. They are active in May and June and again in September. Severe infestations may defoliate a tree. A pressurized sprayer may be used to lightly wet the tree with a mild insecticide such as Pyrethrum. An application of Pyrethrum several days apart may be required to be effective. Sevin may be more effective against severe infestations. A biological control such as BTK may be useful as an alternative. Regardless of the product used, inspect carefully before continued spraying. Ensure that you follow mix and application directions carefully and always use appropriate safety precautions for every product. Provision of good nutrition is very important.

DIPLODIA TIP BLIGHT: Tip blight is caused by a fungus, *Diplodia pinea*, which may attack several types of Pine but is most common in Austrian Pine. There are two distinct forms of infestation but the form of primary concern is the one that initially causes new growth to be brown and stunted. A distinctive characteristic is the retention of dead buds and needles on the tree from resin accumulation at the base. Lower limbs are affected first and eventually limbs die back and growth is stunted. As soon as the blight is noticed, infected buds and twigs should be pruned and destroyed. This is best done when the tree is dry to avoid spread of the fungus and a pruning sanitizer should also be used. The only effective non-commercial control is Bordo powder (copper sulfate). A pressurized sprayer may be used to lightly wet the tree before the buds develop and twice more, every 8-10 days.

APHIDS/MITES: Aphid infestations are somewhat weather dependent. Warm, moist weather promotes generation, and the aphids are often more prevalent the following spring. If unchecked, mites and aphids can build up rapidly and are capable of severe damage and possible death of the tree. Mites are characterized by fine silken webbing on the twigs and needles. There are a number of aphids that affect Pine. A tree may exhibit a white woolly substance, a shiny, sticky substance or even a sooty black appearance. It is typical of affected needles to turn brown or yellow and drop.

Damage tends to start in middle to late spring. A pressurized sprayer may be used to lightly wet the tree with a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, when the problem is first identified. Two or three applications several days apart may be necessary to be effective.

NEEDLE CAST: We are seeing an increase in Needle Cast problems in this region over the past few years. Needle Cast is a term used to describe the shedding of needles by a tree and can also be applied to conifers other than Pine. Wet, warm springs will aid the growth and spread of fungi. Several fungi are known to cause Needle Cast in Pine. To mention a few; *Lophodermium seeditiosum* has been associated with Austrian, Red and Scots pine in Eastern Canada while *Cyclaneusma minus* has been found in Scots and Mugho pine. *Caravirgella banfieldii* has caused widespread damage of white pine in Maine. Needle cast is characterized by initial shedding of needles at the base of the tree that tends to work its way up the tree. Small black dots may be noticed on the shed needles in most cases.

The only non-commercial product available to combat active needle cast is Bordo (copper sulfate) powder. A pressurized sprayer may be used to lightly wet the tree with two or three applications of copper-sulfate in late May and June. In addition to spraying, it is recommended that fallen needles be cleaned up and grass be mowed short to minimize humidity. A good ground cleanup and appropriate nutrient supply combined with one or two sprays of garden sulphur in early to mid-spring may also be beneficial in prevention of needle cast.

SPRUCE (PICEA)

Picea is from the old Latin family name “pix” for the Spruce tree family which means “pitch”. Spruce trees have long been used as a landscape tree in both full sun and part shade. For the most part they are tall symmetrical, conical trees that will tolerate a wide variety of soil types. Spruces have a shallow, spreading root system and prefer a lightly moist but well-drained soil. There are about 40 species of spruce found in the North Temperate Zone. Only a few species are found in the nursery trade but there are many cultivars.

Large spruce trees can dominate a small landscape, so are best used on the side or back of properties in an accent or screening role. Young trees should have about one third of the candles (new growth) removed each year, if a full and bushy effect is desired.

Like many other plants, spruce will benefit from some good organic compost (about 30%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth. A preventative spray program may be beneficial if you or others in your vicinity are experiencing disease or insect problems. There are a number of pests that can affect the spruce family such as canker, needle cast, rust, aphids, budworm, scale and assorted sawflies, weevils and mites. Most of the above mentioned pests are relatively uncommon on spruce used for landscape in our region. The most common problems that nursery clients have consulted about in recent years are listed below.

APHIDS: A Pressurized sprayer may be used to lightly wet the tree with a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, in late April and early May. Two or three applications several days apart may be necessary to be effective. Inspect carefully before continued spraying. Ensure that you follow mix and application directions carefully and always use appropriate safety precautions for every product.

MITES: Mite damage typically occurs in May and June. Mites suck the sap from the underside of the needles and cause some irregular browning in the affected needles. Large mite infestations may be fatal to young trees and large trees may succumb after several years of infestation. Most damage starts on the lower branches and it may be initially confused with needle cast syndrome (see below). A pressurized sprayer may be used to lightly wet the tree with garden sulphur or a mild insecticide, such as insecticidal soap, or one containing Pyrethrins, in late May and June. Two or three applications several days apart may be necessary to be effective. Inspect carefully before continued spraying.

NEEDLE CAST: We are seeing an increase in needle cast problems in this region over the past few years. Needle cast is a term used to describe the shedding of

needles by a tree and can also be applied to conifers other than spruce. Two fungal pathogens cause needle cast in spruce; one is called *Rhizosphaera* needle cast, after *R. kalkhoffii*, and one is called *Stigmina* needle cast, after *S. lautii*. *Rhizosphaera* needle cast is more common in Colorado Blue Spruce and its hybrids while *Stigmina* is more common in other spruce species. Needle cast is characterized by initial shedding of needles at the base of the tree that tends to work its way up the tree.

The only non-commercial product available to combat active needle cast is Bordo (copper sulfate) powder. A pressurized sprayer may be used to lightly wet the tree with two or three applications of copper-sulfate in late May and June. Overuse of copper-sulfate is not recommended due to the potential for copper to accumulate in soil and result in copper toxicity to plants. In addition to spraying, it is recommended that fallen needles be cleaned up and grass be mowed short to minimize humidity. A good ground cleanup and appropriate nutrient supply combined with one or two sprays of garden sulphur in early to mid-spring may be beneficial in prevention of needle cast, as well as mites.

DIPLODIA TIP BLIGHT: We are seeing an increase in tip blight, particularly in blue spruce, here at the nursery in 2015. It is a fungal disease which is most often associated with Pine. Please refer to the Good Care Practice section and the information about Diplodia in the section on pines for more information.

YEW (TAXUS)

The species word *Taxus* comes to us from Greek via Late Latin whereas Yew is Old English of Germanic origin. Yews are in the Taxaceae family, a rather complex family of plants of over twenty species worldwide. Yews in Eastern North America are in the group *baccata*, one of three groups in the family of yews. The Taxaceae family differs from other conifers to such an extent that some botanists have argued that it should be in its own order of plants. The most common species in the Nursery industry in Canada are the *media* and *cuspidate* species and their cultivars.

The fifteen or so Yews commonly used in landscape may be sprawling shrubs as low as 60cm or upright shrubs, rarely exceeding 2.5 m in height. The leaves tend to be flat, dark green, arranged in two flat rows either side of the branch. They produce red berry-like structures that are eaten by several bird species. Yews prefer any good garden soil but will not tolerate heavy clay soil, drought or a low pH. They require a well-drained soil, preferably moist and do best at a pH of 6.5. Most untreated soils in our region have a pH level of approximately 5.5.

Therefore, a yew may benefit from the addition of lime to moderate the pH to the 6.5 range. Their most valuable asset as a landscape plant is their ability to tolerate shade. The cuspidate require more shade than the media and in hot, dry climates they benefit from mid-day shade and do best with some winter shade. Location is particularly important for the zone 5 cultivars that are less hardy. Yews provide attractive all-season interest in the landscape with their dark green foliage and some varieties are good for hedging, in the proper location. Both common Yew species are very adaptable to pruning. Ornamental Yew is prone to damage in drought conditions or in soils that are water saturated for extended periods. Trees and shrubs in well-drained soil should be watered deeply during periods of hot weather and drought to mitigate damage to foliage. It is natural for all evergreens to lose inside foliage each year. In late summer or early fall, yew needles that grew 3 to 5 years ago will suddenly yellow and remain on the bush for several weeks before dropping to the ground.

Like many other plants, Yew will benefit from some good organic compost (about 30%) mixed with your original soil and some bone meal (approx. 2 cups) in the base of the hole to promote root development and growth. More detailed information on planting and care is available from Scott's Nursery.

BLACK VINE WEEVIL: The Black Vine Weevil (*Otiorhynchus sulcatus*), also known as the Taxus weevil, is a predator of many plants including Yew. The weevil is a small, black snout insect that emerges from the soil about late June and is most active at night. Most damage is done on the lower branches. If chewed leaves are noted on the plant or grubs near the base of the tree, a pressurized sprayer may be used to lightly wet the lower part of the tree and soil with an insecticide, such

as Pyrethrum, in late June and early July. The grub stage may also be susceptible to a biological agent such as BTK.

PHYSIOLOGICAL DISEASE: The most common problem with Yews is branch dieback. Tips tend to yellow and wilt and will eventually die. If not corrected, the death of the plant will occur within a few months. This is most often caused by saturated soil, drought or low pH. Heavy clay soils cannot be amended to prevent saturation without drainage or elevation adjustment. Drought may be mitigated by good amendment material and occasional deep watering during prolonged heat spells. Most untreated soils in our region, especially where conifers are present, tend to be in the 5.5 pH range. Adjustment of the pH to 6.5-7.0 by the addition of a proper amount of lime is recommended.

Scott's Nursery's certified staff is pleased to assist in problem identification and possible remediation methods within their experience.

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