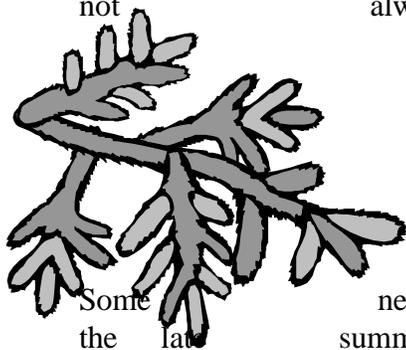


EVERGREEN AUTUMN NEEDLE SHED

By definition, evergreens remain green throughout the year but every fall, evergreens shed those needles which are no longer required by the plant. Although the loss of your evergreen's needles may at first be disconcerting, this is a natural process which is often confused with injury, disease or insects. Often this process is somewhat gradual and hidden by the foliage on the exterior of the tree. The amount of autumn needle shed can vary from year to year. If the **current** season's needles are shedding or turning brown, homeowners should be concerned as these symptoms may mean that the plant is suffering from one or more unusual conditions.



The annual needle drop is characterized by the foliage within the interior portion of the plant turning yellow, then brown, and finally dropping off. Different species lose their needles in different patterns. Pines usually drop entire bundles of needles, Cedar leaves turn brown but often stay attached to the branch until rubbed off by the wind (or manually), Spruce shed needles individually. The oldest, or innermost needles of spruce and fir shed first, however, needle drop is not always restricted to the oldest needles. Evergreens do not usually replace the needles lost through this natural process, but next year new growth will occur at the ends of the branches.



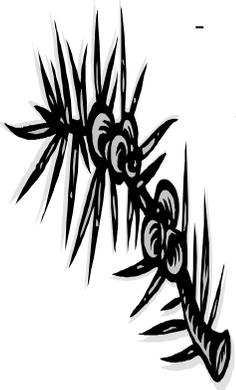
Understanding the process of needle growth and loss

Some needle loss may occur during the growing season, but is more noticeable in the late summer. Natural or seasonal needle loss usually begins at the bottom of the tree near the trunk and progresses up and out. Evergreen needles may be as short lived as two years for plants such as the Cedars or white pine or as long lived as 17-30 years for the Bristlecone Pine. Spruce needles generally live for about 3 to 5 years. Junipers will hold their needles for about 10 or more years. Taxus (Yew) needles commonly turn yellow and drop in late spring or early summer of the third year. The amount of needles loss can be related to the amount of growth that took place during the season these needles first appeared on the tree. This is one of the reasons why in some years we notice the annual needle loss more than other years.

Stress Can Affect Needle Loss

Any factor that causes the tree stress may intensify the autumn needle loss. The evergreen will respond to stress by reducing the expense of needle care and maintenance. This is a natural self preservation response. Some of the common causes of stress include:

- Drought or lack of water during the growing season.
- Overwatering or poorly drained soil.
- Trunk flare (where the trunk and roots join) too deep, may be the result of being planted too deep or the grade was raised. The trunk flair should be above ground. Planting too deep will result in the tree slowly dying.
- Damaged roots due to excavation, trenching, heavy equipment compaction, extreme wind storms.
- Soil quality if poor, low in nutrients or with high salt content. Evergreens located along roadways and sidewalks are particularly prone to damage from road salt in the winter. A lack of potassium (K) in the soil may result in the loss of older leaves, causing a denuded (bare) look
- Weather related, loss of snow during winter (Chinook) or rapid temperature changes in winter.
- Excessive wind resulting in the plant not being able to replace lost moisture quickly enough especially in winter.



Stressed trees are vulnerable to insect and disease problems such as spider mites and fungal disease. These problems may result in abnormal needle loss. For example, spider mite infestation is more likely to be a problem during hot, dry weather in late summer.

Reduce Stress By

- Planting the tree so the trunk flare is visible. If a grade change is necessary, be sure to protect the soil level at the tree through the use of retaining walls, berms, etc.
- Planting trees away from roads and sidewalks and avoid using salt on your walks and driveways.
- Water evergreens as needed during spring & early summer, allow them to have a drier spell between late August and late September to allow them to properly harden off for winter. Beginning in October water well several times to ensure sufficient moisture in the root zone.
- Fertilize with an evergreen fertilizer in the spring – never after July 15th.
- Mulch around the base of the tree to reduce moisture loss and temperature changes, do not allow the mulch to touch the trunk.
- Spraying trees with an anti-transpirant such as Wilt-Pruf in the fall will help reduce moisture loss in winter. Re apply in early spring if it is unusually mild.
- Soil test if you suspect excess nutrients or deficiencies.

