

PROTECTING FALL PLANTINGS FROM THE RAVAGES OF WINTER

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With the increasing popularity of fall planting of evergreens and deciduous materials, in some areas of the country, winter protection of those plants is more important than on spring planted materials. This is not to say that winter protection shouldn't be used on springtime plantings or established trees and shrubs, for these can certainly be damaged by severely cold, windy and snowy weather conditions.

Newly planted materials are in more danger of winter damage since the plants are not fully established and acclimated to their new location. This is certainly true of evergreens which continue to lose moisture from their leaves throughout the winter months. Since their roots are not fully re-established, the moisture often cannot be replenished and sun scorch results. Other types of winter damage to newly planted stock are: Bark splitting, bud kill, desiccation, uprooting and freezing.

It almost goes without saying that the winter hardiness of the materials to be planted should be known prior to planting. The cold or winter hardiness of a plant is simply its ability to survive unfavorably low freezing temperatures. Your local Cooperative Extension office or Trade Association should be able to supply you with a list of winter hardy plants for your area.

Exposure is another important factor in the placement of trees and shrubs. Fast growing smooth-barked plants that have been placed in areas that are very sunny and windy are more apt to be injured by winter winds and the freezing and thawing effects of the sun. This is especially true if the plants are growing in poorly drained soils and/or were overfertilized.

Rapid temperature fluctuations can be absolutely devastating because the sap freezes and thaws resulting in a rupturing of the tissues. The heat from the sun can cause the stomates on the undersides of the leaves to open and lose moisture. It can also cause leaf buds to prematurely open and to be killed by the freezing nighttime temperatures. Reflections of the sunlight off of the snow or light colored objects such as buildings can be an additional source of heat onto the plants. This is more of a problem to evergreens in southerly unprotected areas.

Temperature fluctuations will also effect the root system, when the soil moisture is frozen it is unavailable to the plant and desiccation may result. The injury from alternate freezing and thawing is due to the heaving of the soil and by the actual ripping of the root system in the process. Early warm temperatures can bring about the early blooming of trees which then have a high probability of being injured by frost.

Plants going into the winter without sufficient soil moisture are more apt to be effected by freezing soil temperatures than those whose soil was



moistened prior to the soil freezing. It is therefore important to water all plant materials just prior to the onset of freezing temperatures when Mother Nature doesn't do it for us. If the soil is dry during the mid-winter thaw, this would be a good time to water again. It is one of the simplest and easiest forms of winter protection but unfortunately one that is often overlooked.

Since the severity of the winter can have adverse effects on newly planted trees and shrubs as well as on established plant materials it is therefore important to supply them with a means of protection. Winter protection can be supplied by: Staking, wrapping the bark of deciduous trees, mulches, the use of anti-desiccants, and various forms of physical protection. With whatever method is used the soil should be given a thorough drenching before the ground freezes.

Staking — Newly planted trees need special attention from being uprooted by strong winter winds. This can be most successfully accomplished by staking or guying. Adequate support must be supplied to hold the tree in position throughout the winter until the roots have grown enough to support the tree. Guy wires or supports are usually left on for one to two growing seasons, however they should be checked after the first year to see that they are not girdling the tree. If they are found to be cutting into the bark the wires should be loosened.

Care should be taken in placement of guy wires on trees in public areas for they may be a source of danger to someone walking by and tripping over them.

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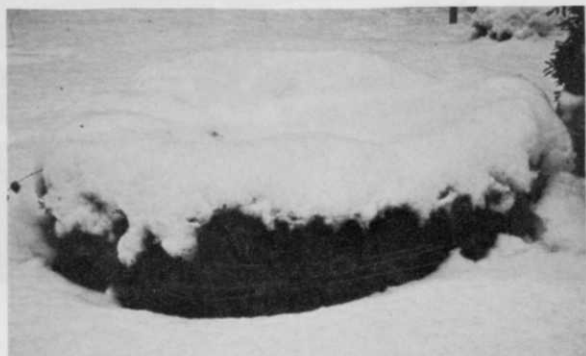
Wrapping — Wrapping the bark of newly planted tender trees protects the trunk from the direct rays of the sun which could, if left unprotected, result in the bark splitting. This is especially a problem on the southerly exposed portion of the tree. During the daytime, southerly exposed bark warms up considerably (30 to 35 degrees higher than the north side) only to be subjected to freezing temperatures again at night, resulting in the splitting of the bark. The splits in the bark then serve as a portal of entry for insects and diseases. Therefore a commercially available tree wrap or burlap should be used to protect the tree from the drying effects of the sun and winter wind. The trees should be shielded for at least the first winter and perhaps the second.

Mulches — A winter mulch is used to minimize root injury from the freezing and thawing effects of the winter which can cause an uprooting or heaving of newly planted and established trees and shrubs from the soil. A mulch applied just after the ground freezes can prevent this from happening by maintaining the soil at a more even temperature. The mulch can be applied after the soil freezes in order to keep the soil cold rather than preventing it from becoming cold. A mulch will also help to retain soil moisture. Pine bark, wood chips, hay, clean straw, oak leaves, or evergreen branches can be used as winter mulches. Whichever mulch is used a few inches of it should be spread evenly over the root zone.

Anti-Desiccants — Anti-desiccants are another means of providing winter protection to evergreen trees and shrubs. They form a protective film over the plant which slows down the rate of transpiration and reduces water loss when the ground is frozen and water cannot be taken up by the plants. This is especially helpful on warm winter days when the plants transpire at a fairly high rate while the roots are unable to replenish the water loss due to the soil being frozen. The result is that the foliage becomes scorched. Anti-desiccants, if applied properly can help prevent the leaves from becoming scorched.

There seems to be a great deal of controversy among people in the industry over the use and the number of applications of anti-desiccants needed to give positive results. However it is felt by most experts that one application is usually not sufficient when applied to evergreens in the colder climates. Anti-desiccants seem to be most effective when applied two to three times: Late fall or early winter, again in mid-winter and if possible a third application in late winter. The mid-winter application is sometimes difficult since the temperature must be above forty degrees Fahrenheit and stay above freezing until the material has completely dried on the plants to form a wax-like coating. If it is too cold the anti-desiccant may freeze on the plant and be completely ineffective.

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If this plant were not tied, the weight of the snow would have broken some of its branches.



Burlap is placed on top and around wooden frame for protection.



Newly planted tree is staked and wrapped in preparation for the winter.

Physical Protection — Heavy snow or ice cover can be injurious to many plants especially those with multiple leader stems such as taxus, arborvitae, upright juniper and others. Tying can help to prevent the plants from breaking. Tying should be done before the first snowfall. The twine or soft rope should be fastened at the base of the plant and wound spirally upward to the top and back down in reverse to compress the shrub's size.

Burlap is often used to screen out the drying effects of the wind and sun and also where winter hardiness is questionable. Before covering the plant with burlap it should be either tied or staked and then the burlap applied. Burlap can be used as a wind screen with a strip of it protecting the plants from the prevailing winds or it can be used as a complete cover by surrounding the entire plant. The cover should be put on after the leaves have dropped from the deciduous shrubs and it should be removed early in the spring.

Lath can be used either over shrubs for protection against sliding roof-top snow or by surrounding them for protection against the drying effects of the wind and the sun. Snow fencing, burlap, evergreen boughs or Christmas tree greens, baskets and wooden crates also provide good protection. Whenever posts are necessary to support any type of physical protection they should be put in the ground before it freezes. The actual pro-

tection (burlap, lath etc.) should not be put around the plant until early winter.

The types of physical protection are endless since it is really a matter of common sense. Although I would like to mention that plastic should NEVER be used, for the plants under it will simply cook from the heat of the sun.

It is unfortunate that many forms of physical protection are not esthetically appealing in the landscape for they are a great tool in preventing winter damage and death of plant materials. It was interesting for me to discover just how little they are used in this area on commercial sites due to the added cost involved and the overall appearance of the landscape.

Sometimes during an unusual winter, damage occurs in spite of protective measures. Fortunately this does not happen very often but if it does, carefully inspect the plants before calling the situation hopeless. Some plants such as some forms of Ilex and others will appear to be dead. In such cases the bark should be inspected for signs of life by gently peeling back a little piece of it. If the plants are alive, prune off any of the obviously dead material. Injured plants should be carefully cared for during the following growing season by applying water at weekly intervals when rainfall is not plentiful. When the plant shows signs of recovery, by making new growth, an application of fertilizer is in order.

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phone numbers. The pamphlets explain the species of the tree that's been planted, its proper and common name, why it was planted there, and how to take care of it and water it.

Metz is also receiving help from the Ohio Department of Natural Resources to do a free inventory of all the trees. Senior citizens will help number the trees and mark their location.

People are taking advantage of the tree program and assisting in Bowling Green. The same response comes from Lancaster, PA, which has its own adopt-a-tree program. Diane Williams, city arborist, says, "I think people appreciate trees a little more because of a concern for the environment."

The residents of Lancaster may purchase a two-inch caliper tree wholesale from the city and assume full responsibility after it is planted. "We do occasional fertilizing and spraying for insects, such as aphids, which were prevalent this summer," Williams says. Yet the funds don't exist for more than emergency aid on the privately owned trees.

The city used to plant 100 trees a season, but now only 40. "The people want it, they appreciate it more, yet it's one of the last things to get funding and the first to be cut. A lot of people still consider it an extra," says Williams.

John Van Vorst, supervisor of parks, Tenafly, NJ, knows that even if he gets additional funding it

won't be substantial as he is governed by a 5 percent a year increase. This year there was no increase. Van Vorst has found his own way to boost his revenue.

He receives about \$1,000 a year in firewood sales from wood that in the past would have been thrown away or put in a landfill. Trees recently downed by Hurricane David were out and sold to residents. With this money he buys tulip bulbs, flowers, and other materials.

Autumn leaves put through a Royer shredder make a fine compost, which the park department sells to nurserymen and landscapers at \$5 a yard. These sales produce about \$2,000 a year. The city also saves by using the leaf compost instead of buying topsoil. Compost is free to all residents of Tenafly.

Van Vorst has saved dollars by planting many of his own flowers. "Anything that we're cost conscious about planting we try to breed from cuttings in our greenhouse," he says.

Other ways of cutting cost of maintenance include use of granular weed killers, such as Casoron, to eliminate hand trimming; Roundup on turf areas where grass is encroaching plant beds; and wood chips as buffer plantings. Van Vorst has cut his mowing schedule to every seven days for high use areas and every 10 days for low use areas.

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