

Winter tree survival

Undesirable effects of environment on trees are labeled as a noninfectious disease. Putting aside possible physiological diseases also in this category, such as nutrient deficiencies and excesses, and chemical and mechanical injury, the harshest environmental conditions are imposed by a severe winter.

Low temperature

Trees are rated for their respective winter hardiness by the "Plant Hardiness Zone Map", published by the United States Department of Agriculture, Publication number 814, revised in 1964. This rating can serve as a guide to whether the species you've planted or have to care for in your area are suited to normal climatic conditions in that area. Of course, severe conditions can affect even the hardiest of trees, but if a tree is rated less hardy than the normal for your area, special care must be taken to protect it. This can include making sure they are surrounded by other plants that will protect them, by mulching, or simply that they are in the best possible condition going into winter.

One type of winter injury that can occur to trees well-adapted to the cold is the destruction of new succulent growth caused by a combination of heavy fall fertilization and a late "Indian Summer". This can include dieback of buds, twigs and even small branches. For this reason, late feeding should be avoided.

Winter hardiness can be influenced by the species of the tree, its location, the character of its root system, drainage and the additional effects of bad weather.

Poorly-drained soils are more conducive to freezing than are well-drained soils. Pine, maple and elm roots are among those most susceptible to freezing damage. Freezing is more likely to occur in bare soils when snowcover is limited.

Frost cracks are another injury common to cold weather, but are noticed more often when the sun warms the tree during the day and temperatures drop rapidly at night. They occur most generally on the south and west, or sunny, sides of the trunk.

Frost cracks result from water movement within the trunk. Water moves out of the cells near the outside of the trunk and freezes. This results in drying and shrinkage of the outer

wood. The wood in the center does not experience this shrinkage and sets up a heavy strain which results in the outer bark splitting open, usually with a loud, sharp report. The cracks are often over a foot long, longitudinally, several inches deep and an inch or so wide. Isolated trees, and those in their most vigorous growth stage are most susceptible to this type of damage. It also appears that conifers are more subject to frost cracks than are other evergreens.

The crack usually heals over during the following growing season. It may, however, reopen during the next winter. If this occurs, it may be necessary to screw an appropriate sized threaded rod through a slightly smaller hole drilled horizontally through the crack. It is wise to consult a trained arborist for this kind of treatment.

Young trees can be protected in the fall by wrapping with special paper, burlap, or painted with whitewash.

Dessication

Dessication, or drying, is another harmful occurrence, common to winter. Winter drying occurs because the soil is frozen and water lost by evapotranspiration cannot be replaced. Severe water loss will more often occur during late winter and early spring as weather warms but before the soil thaws. This is most common with exposed evergreens. Screens, if feasible, can help prevent winter drying. There are also anti-transpirants on the market that can be sprayed over the foliage to prevent drying. These melt and disappear as the weather turns warm.

Snow and ice

Snow and ice damage to trees is relative to the amount that occurs. While damage is greater in the North, where temperatures and precipitation is greater, damage is not unknown to the South. The brief ice storm in Atlanta, Georgia during the GCSAA show last year is a good example.

The only real preventative measure for large trees is cabling and bracing. Again, this is best approached by a trained arborist who can insure the right job. If you decide to have a large specimen braced, you might want to consider having it protected from lightning at the same time. Cabling and bracing also protect valuable

trees from strong winds.

Rodents and larger animals

Rabbits and mice can cause severe injury to the trunk of a small tree. Flowering crabapple, Hawthorn, Winged euonymus, and Mountain ash are among the favorite menu items. The trunks can be sprayed with a rodent repellent, or wrapped with a ½-inch mesh wire cloth from the soil-line up to about three feet high.

Feeding deer are a danger to tree branches within reach, and can completely demolish small trees. Rutting deer can strip the bark completely from a sapling. Deer repellent sprays are probably the best answer. Fences do not normally keep deer out unless they are high. Recall the article on Elkhorn Valley Golf Course, where Don Cutler had to build an eight-foot fence around his entire course to keep elk out.

Pruning

Pruning should be delayed in the more northern areas until after the period of extremely low temperatures have passed. Cut areas can be damaged by extreme cold. The degree of damage varies with the size of the cut and the strength of the plant.

Winter survival is one of the trials of a tree. Once you have got it safely through the extreme temperatures, snow and ice, then you face summer heat, a host of insects and diseases, more wind and lightning. You can see that insuring winter survival is only one small part of a complete tree care program. It does no good to protect a tree from lightning if you restrict its rootzone by paving, compaction, etc., or allow insects to defoliate it, and the list goes on and on.

There are many excellent books that have been written on the subject. Many of these are available from Harvest Publishing. I would be glad to provide anyone with a list upon written request.

An excellent organization to write for advice on getting professionals to do a job for you is the National Arborist Association, Inc. The address is: 3537 Stratford Road, Wantagh, NY 11793. Robert Felix is the Executive Secretary. Another group is the American Society of Consulting Arborists at 12 Lakeview Avenue, Milltown, NJ 08850. Ron Morris □