

extensively on the downwind side. In certain situations, such a condition may be picturesque and desirable—if not, remedial pruning for more balanced growth can be done.

In windy locations open up the top of the tree by thinning out moderate-size branches. The tree will offer less wind resistance. Thin back branches on the downwind side to laterals to keep the tree more symmetrical.

You may need to head curving branches on the windward side near the point at which they begin to bend with the wind. Prune to a bud pointing into the wind. You may need to repeat this each time the endmost new shoot starts to be bent by the wind. Such a branch will be stockier and able to resist bending. One such pruning may correct the problem.

Weak young trees may result from a number of unfavorable growing conditions, either in the nursery or after planting in the landscape. If such problems as girdling or kinked roots, disease, insects, trunk sunburn, poorly drained soil, etc. are not limiting growth, severe pruning may be the last resort that will revitalize the tree. Because of the lack of latent buds, however, most conifers will not respond to such pruning.

Head the trunk 6 to 12 inches above the ground or graft union. Paint the trunk white to

prevent sun damage. New growth will come from latent buds below the cut. When the new shoots are 5 to 6 inches long, choose the one in the best position and pinch back the others. The trunk may need to be recut diagonally above the newly selected leader, which will protect the developing shoot, the new leader, and the base of the trunk. Often a vigorous well-branched leader will develop in the first year to revitalize the tree.

The leader may not maintain its dominance. If you want a new leader remove the original in favor of a strong upright growing lateral. The new leader should be the topmost lateral on the trunk. It is undesirable to leave part of the original leader above the new one because it creates unnecessary competition between the two. Thin back the original leader to the lateral selected as the new leader.

Late in the season several buds may begin growth near the tip of an otherwise branchless leader of scaffold branch. They may grow up to 6 inches in length and be about as large as the terminal. Unless they are thinned out, these branchlets and the terminal will grow weakly the next season. It is best to head to a bud below this tuft of branchlets or to thin the tuft, leaving one branch and the terminal.

---

## ABSTRACT

Neely, Dan. 1974. **Iron deficiency chlorosis of shade trees.** Proc. Midwestern Chapter, I.S.T.C. 29: 2-8.

Iron deficiency chlorosis has been recognized in various parts of the world for over 100 years. It has been a problem of a wide variety of orchard, garden, and field crops in the western United States. The characteristic symptom of iron chlorosis in trees is a yellowing of the leaf blade in the areas most removed from the veins. As the deficiency becomes more severe, results of the shortage of chlorophyll and food production in the leaf become evident. Over a period of years, unless treatment is given, the trees die. The relationship between high soil pH and the unavailability of iron to plants is being extensively studied but is still not well understood. Susceptible plants growing in soils with a pH of 6.7 or above are frequently victims of iron chlorosis. Man learned over 100 years ago that adding iron to plants often corrects chlorosis. The iron source first and most often used in treatment of iron deficiency is iron sulfate. It is abundant, cheap, and readily available. Unfortunately, it is not the most effective iron source. The development of synthetic iron chelates in the 1950's has improved chlorosis control recommendations greatly. Correction of chlorosis by foliar sprays has been usually only moderately successful. Iron chelates for use in soil treatments have been given much attention in recent years. The remaining control measures for correcting iron chlorosis involves the injection or the implantation of iron salts into the trunks of affected trees. Soil injections and trunk implantation treatments have consistently given prompt and thorough correction of iron chlorosis.