



Staking and Guying Trees

Staking or guying newly-transplanted tree is a common landscape practice. While this technique is sometimes needed for, many times it is unnecessary. Small trees up to two inches in diameter rarely require staking, while larger plants may or may not require staking.

A number of people stake trees because they like the appearance of staked trees. In areas of high prevailing winds, staking may very well be necessary to keep the plant upright. And certainly if a plant is deflected by wind after transplanting, it should be staked to protect against such a recurrence.

Other reasons normally given for staking include the need to protect against vandalism, although some research has found that vandalism can be increased by staking. Stakes also have the ability to protect trees from lawnmowers and other types of equipment that could cause injury. Short stakes strategically spaced around the trunk can provide the same protection, however, without guy wires (Fig. 1).



Figure 1 -8-12"



Figure 2

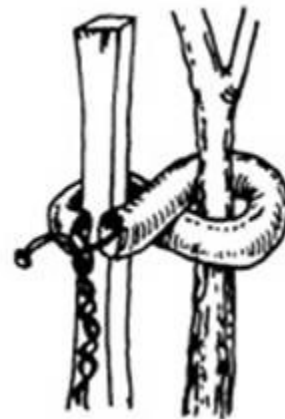


Figure 3

In research measuring the effect of rigid supports on staked trees, unstaked trees were found to have greater trunk diameter than their staked counterparts. Unstaked trees also had greater trunk taper, meaning that the trunk increased in diameter more rapidly, and were lower in overall height while having bigger root systems. As the installed price of trees may increase from 15 to 30 percent because of staking, the cost of this procedure should be weighed against the benefits. Staking is also not without risk to the plant itself.

Most trees up to three inches in diameter can be supported by two stakes normally the same diameter as the tree trunk being staked (Fig. 2). The stakes are placed in line with the prevailing wind direction and driven 18 inches into undisturbed soil. Stakes should be as high as is practical as this will provide additional protection for the tree. Ties are attached to the tree, often at the lowest branch, and to the stakes on either side. The tree can be connected to the stake by running a wire through a garden hose or using elastic ribbon or a plastic tie. Increasingly, people are trying to provide for flexibility and movement at the tying point, not realizing that this increases the risk of mechanical injury.

Screw eyes set into the trunk create another way of attaching the wire to the stake (Fig. 4). While this may appear to be severe punishment for the tree, the technique actually reduces the potential for mechanical damage. The injury associated with this type of attachment is actually relatively minor.

Trees up to five inches in trunk diameter are normally supported by guying with the wires attached to stakes, these guy wires spaced at 120-degree angles (Fig. 5). Wires may be fastened to the tree in the same manners already discussed, although in this instance all attachment point should be at least six inches apart. Attachment should be as high in the tree as practical and certainly at or above the lowest branches. Again, guy wires should be attached to stakes driven 18 inches into undisturbed soil. The axis of the stake should be in line with the axis of the pull on the guy wire (Fig. 6).



Figure 4

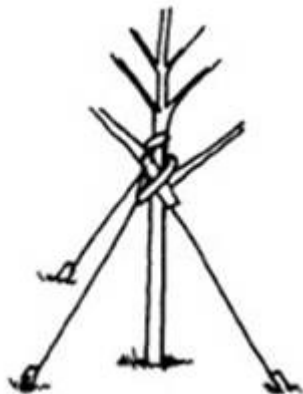


Figure 5



Figure 6



Figure 7

Trees over five inches in diameter are guyed in the same ways as suggested for trees three to five inches in diameter, except that the guy wires are anchored to the soil with the use of earth anchors or deadmen. Again, the axis of the earth anchor must be in line with the pull or stress on the guy wire (Fig. 7).

Guy wires or stakes should always be removed after one growing season. Many people find it convenient to remove the guy wires and stakes after the first growing season and prior to the initiation of growth the following year. Even this short of period can cause girdling if a plant establishes rapidly. Leaving guy wires on longer will almost invariably result in girdling, which is a serious problem.

The one exception to this rule is if the guys wires were attached to the tree with screw eyes or J lags. These should never be removed from the tree, but the exposed head should be cut off, allowing the tree to overgrow the shank. Bolt cutters or a hacksaw will easily remove the hook flush with the trunk.

A concern with the use of guy wires is that they frequently serve as a trip sticks in the landscape. Flags or plastic streamers may be hung from the wire so they will be more visible.

Information obtained through the Ohio State Extension Factsheet HYG-1141-94



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