

Fruits and Nuts

Protecting Fruit Trees from Winter Injury

by David W. Lockwood, Professor, Plant Sciences

Winter freeze damage, also called Southwest trunk injury, may be a problem for young fruit trees growing in Tennessee. This damage can occur on sunny winter days even though temperatures may be quite low. Sunlight striking the tree trunk may raise the temperature of the bark on the lower trunk of the southwest side to 80 or 90 F. Cambial tissue under the bark will lose hardiness. When the sun goes down, trunk temperatures will drop to the same temperature as the air. If this temperature drops below a critical point, these sensitive tissues will be injured or killed.

Symptoms

Injury may appear in several ways. The most obvious damage is splitting of the trunk. Vertical cracks may occur at the time of freezing. Less noticeable injury may appear as darkened cambial areas under the bark. It will become more apparent during the growing season. As the cambium dies, flattened, dark colored areas will be apparent on the damaged portion of the trunk.

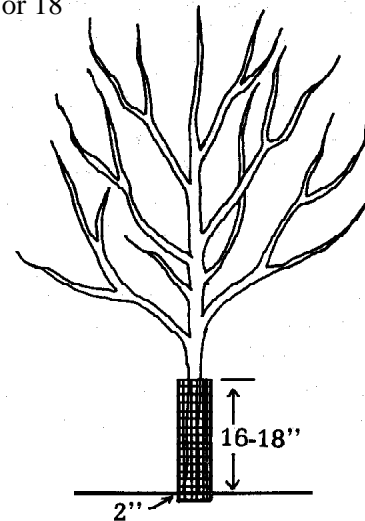
Winter injury may cause tree death within one year. These trees may actually bloom and start to leaf out in the spring. Depending on the severity of the injury and the health of the tree the previous year, trees may die at any point during the first part of the growing season. Less severely injured trees may recover or they may decline for the next few years before dying. Trees weakened in such a

manner are also more susceptible to insects and diseases at either the injured site or throughout the tree than are healthy trees.

Protection Techniques

The two most common methods of protecting trees from winter injury are using certain trunk guards or painting the tree trunks. Trunk guards should be used on all trees for the first two years following planting. After this time, guards may be used for several additional years or tree trunks may be painted.

Trunk guards should be light-colored, preferably white, and extend from about 2 inches below ground to about 16 or 18



inches above ground. Light-colored guards reflect sunlight better than dark guards. The trunk remains cooler and more cold-hardy. The ideal guard should have holes in it to allow for some air movement next to the trunk and should be loose enough to prevent girdling of the trunk as it increases in diameter. Guards that do not have ventilation holes or that fit snugly against the trunk should be put on in fall and removed in late spring each year. Guards that supposedly will expand as the trunk grows do not always work. They may actually girdle the trunk within a few years.

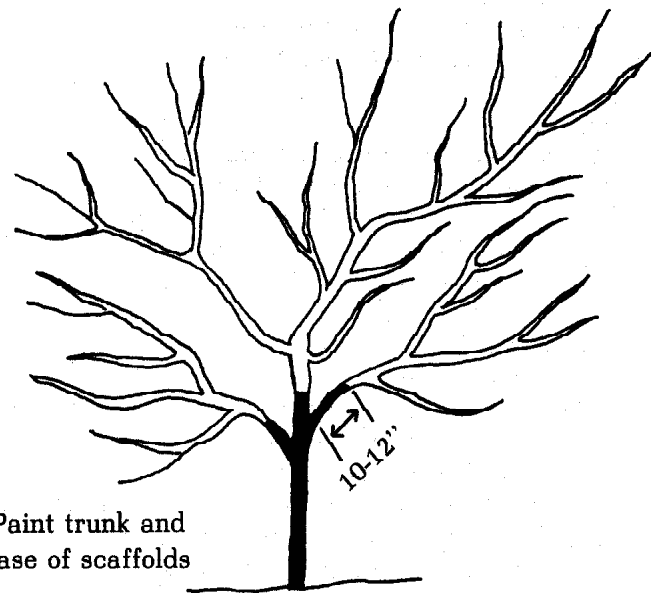
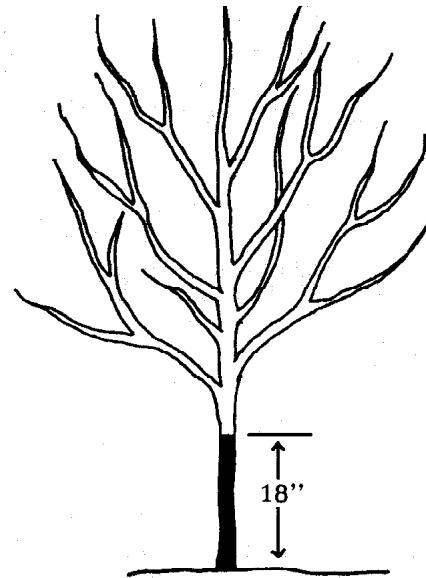
While white plastic guards are the most common, heavy white paper or aluminum foil may also be used. These guards must be removed each spring.

Paint applied to tree trunks may give protection for more than one winter. Advantages of using paint versus guards include better air movement around the trunk, plus better spray coverage to the trunk as routine pesticide applications are made throughout the year.

If you want to paint tree trunks, consider the following suggestions to obtain maximum benefit:

1. Do not paint trees that have been planted less than two years.
2. Use only white latex paint, preferably interior grades. While exterior latex may be used, it may present a greater chance of tree damage. Oil base paints should never be used, as they are toxic to the trunk.
3. Paint tree trunks in late fall from about November to early December. This timing lessens the chance of injury from the paint, plus the paint will not have weathered as much as from an earlier application.
4. Select warm, sunny days when drying conditions are good. Do not apply paint if the air temperature is below 50F. Complete painting by mid-afternoon to allow adequate time for drying. The faster the paint dries, the less chance there is of damage occurring.
5. Paint the trunk from the ground to at least 18 inches above ground. While the south, southwest and west sides of the trunk need the most protection, paint may be applied to all sides of the trunk. Additional protection may be achieved by painting the basal 10 to 12 inches of each lower scaffold limb. This is especially important with limbs having narrow crotch angles,

6. Paint may be applied using a brush or wiped on with a sponge, cloth or even a car wash mitt. Paint may be sprayed on as well; however, this method usually results in a thinner coat of paint on the trees. Use paint full strength for maximum protection.



Paint trunk and base of scaffolds

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