Archive for December, 2012

Understanding Roots
Friday, December 7th, 2012

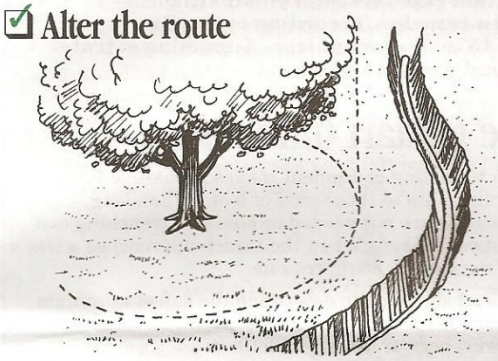
It's the dormant season, and you've settled in to think about tree care for the coming year; e.g. cleaned and fixed tools, making plans for planting and pruning, reading up on various issues that you have identified to be important for your yardscape, etc. So……I will be offering some information about the root system of trees, over the next several blog entries, which may be helpful in your studies. The subsequent information and illustrations presented have been gleaned from Tree City USA Bulletin No. 35 from the National Arbor Day Foundation. I hope it is helpful.

The ground in which a tree grows is as much a part of its environment as the sky above. Roots are a trees life support system, and the first rule of tree care is to understand and protect (as much as possible) root zones. Roots sometimes get no respect from us above-ground caregivers. Roots quietly go about doing their job. They anchor immense (and heavy) trees firmly against the wind, deliver vital water to the growing parts, and pry loose essential elements from the soil. Thus, it is critical that roots be protected as much as possible as we go about above-ground activities. Even when we must install underground utility lines, drainage pipes, construction of foundations or sidewalks, or any other activity that requires digging, it is important to minimize damage to the roots of nearby trees.

One of the first things to realize is how roots systems grow. The following illustrations demonstrate typical root systems, and also debunks a myth that seems to persist no matter what:

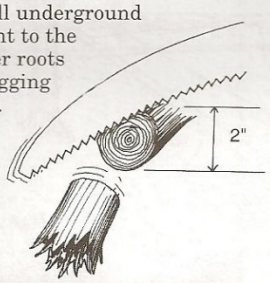
Trenches and trees don't mix! But when a trench—or ditch—is inevitable, here are some ways to minimize damage to roots.

☑ Alter the route



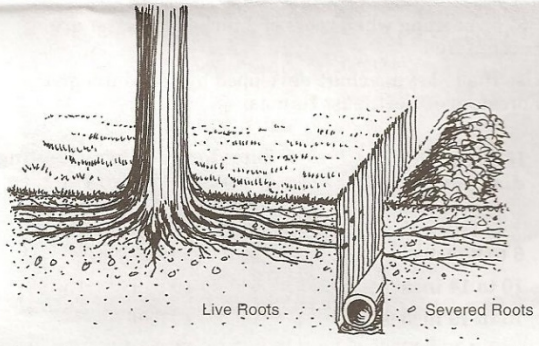
There is nothing sacred about straight lines or the shortest route between two points. When the health of trees are at stake, the small cost of additional material necessary for making a detour is often well worthwhile. Another method is to keep all underground utilities immediately adjacent to the driveway. There will be fewer roots there and it makes future digging less disruptive to vegetation.

☑ When you must cut roots, make sharp cuts



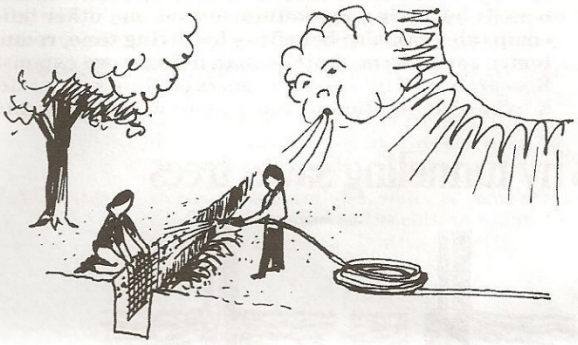
When roots 2 inches or larger must be cut, shovel by hand near the roots and saw the roots. Accidentally broken roots should be sawed a couple inches behind the ragged end. Crushed or torn roots are more likely to allow decay to begin; sharply cut roots produce a flush of new roots, helping the tree to recover from its injury.

☑ Work to the far side of the trench

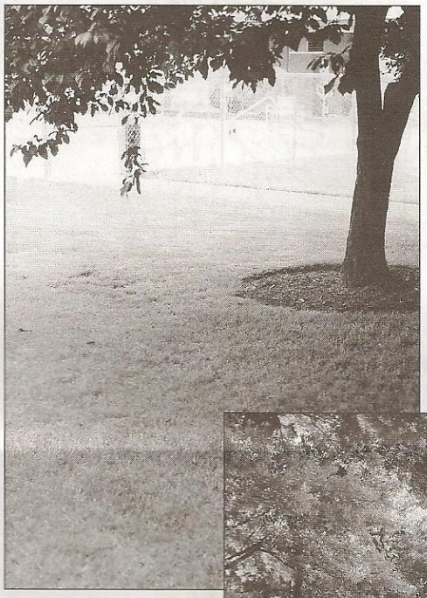


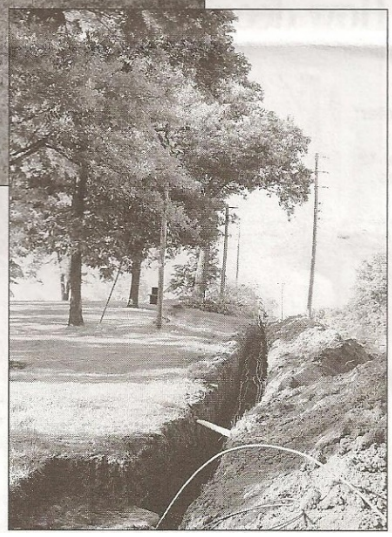
Keep the trench as far away from the trunk as possible, preferably outside the dripline. Then pile soil on the side away from the tree. When this is not possible, place soil on plywood, a tarp, or a thick bed of mulch. This is to help prevent cutting into the soil surface when the backhoe or dozer blade refills the trench.

☑ Keep root ends moist



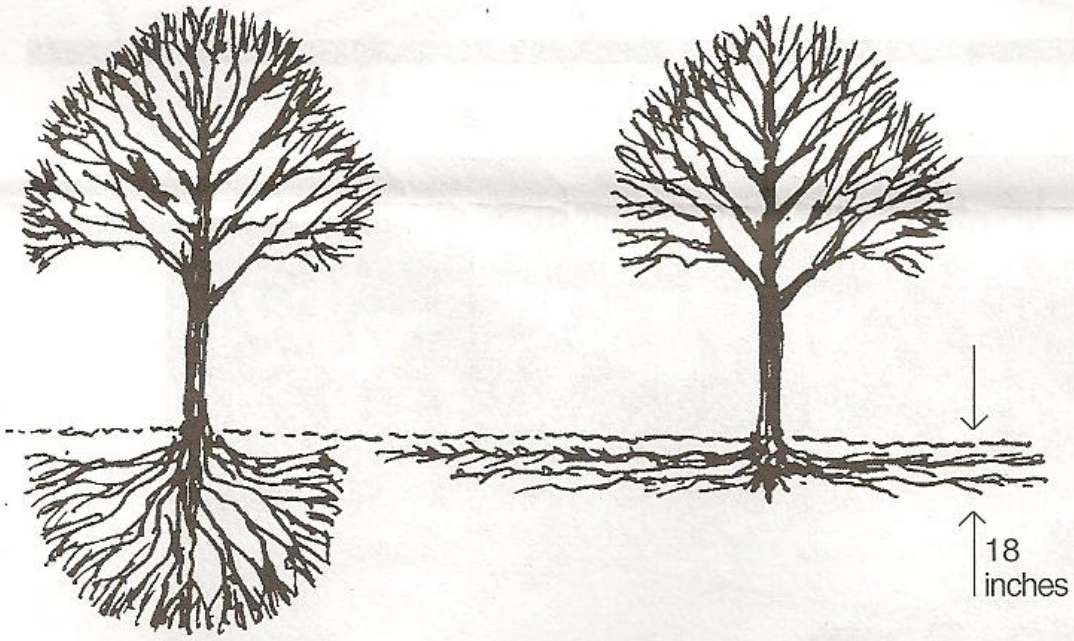
Refill an open trench quickly. If this is not possible and the weather is hot, dry or windy, take steps to keep the root ends moist. A sprinkler system, mist from a hose, or wet burlap may help. Small roots can dry out and die in 10 - 15 minutes. Larger roots can succumb in an hour or less under unfavorable weather conditions.





Whether a gaping hole for utilities, or a barely perceptible slit for a sprinkler system, roots are severed just the same. When work is done near trees, insist that methods are used to minimize damage.

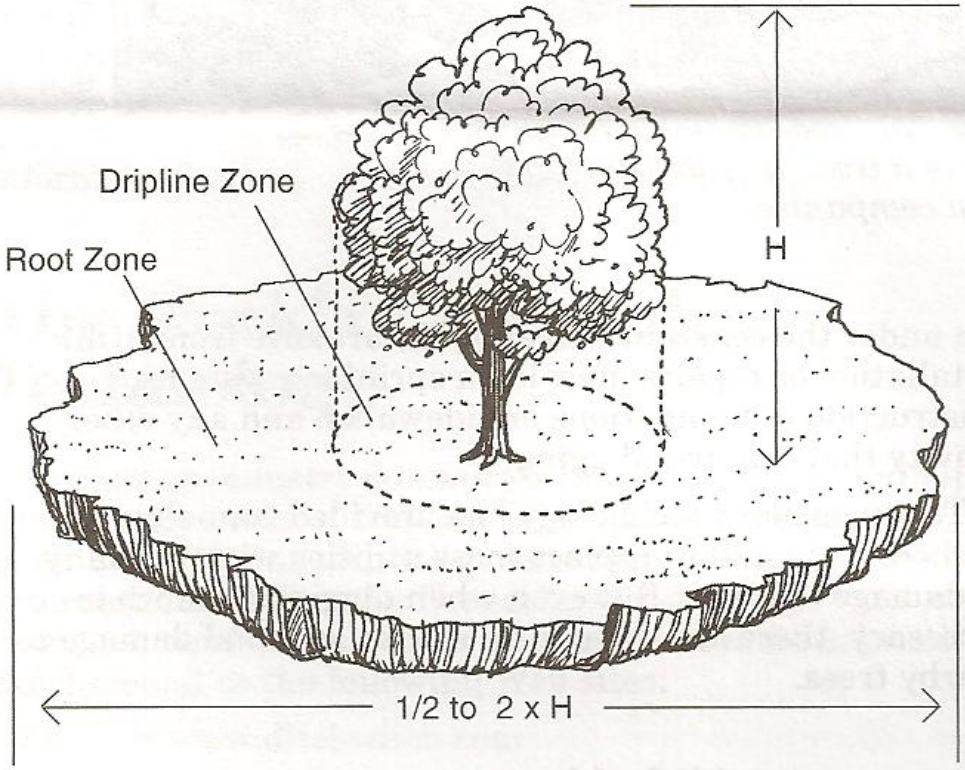
1. Tree roots are not an underground reflection of the crown.



NOT TRUE: This artist's concept regrettably shows how many people envision a tree's root system. Most species do not even have a tap root, and only under rare circumstances would roots appear like this.

MORE LIKELY: Roots spread where soil conditions allow access to soil nutrients, moisture and sufficient air. This results in about 85 percent of a tree's roots being in the top 18 inches of soil.

2. Roots spread far and wide!



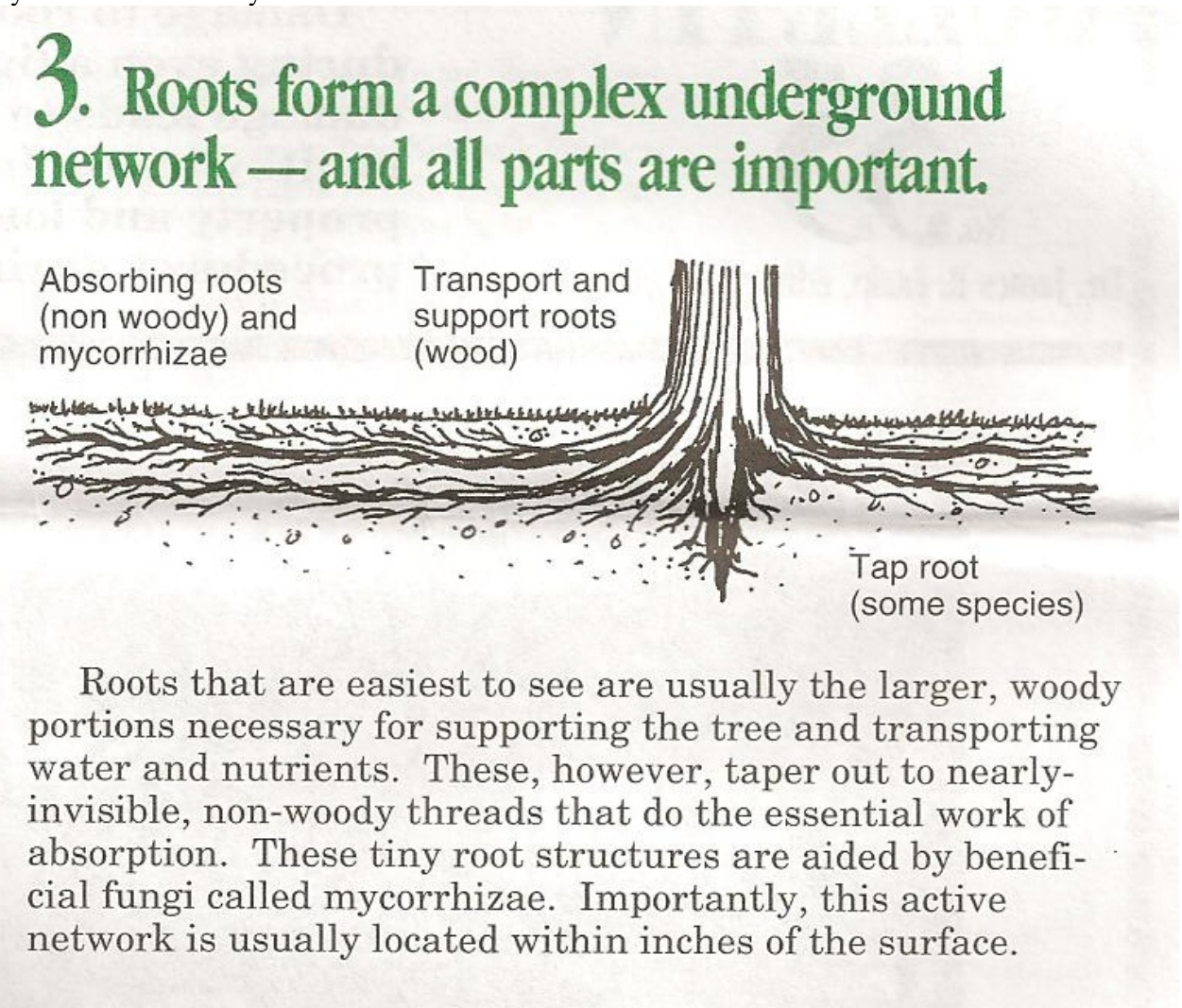
Roots spread amazingly far from the trunk. They typically spread up to 2 times the height of the tree — and sometimes farther! However, the essential mass of roots is usually found within the "dripline," the area underneath the tree's branches.

Next time I'll talk some more about the underground network of roots and why root damage must be minimized or avoided.

Understanding Roots II
Sunday, December 16th, 2012

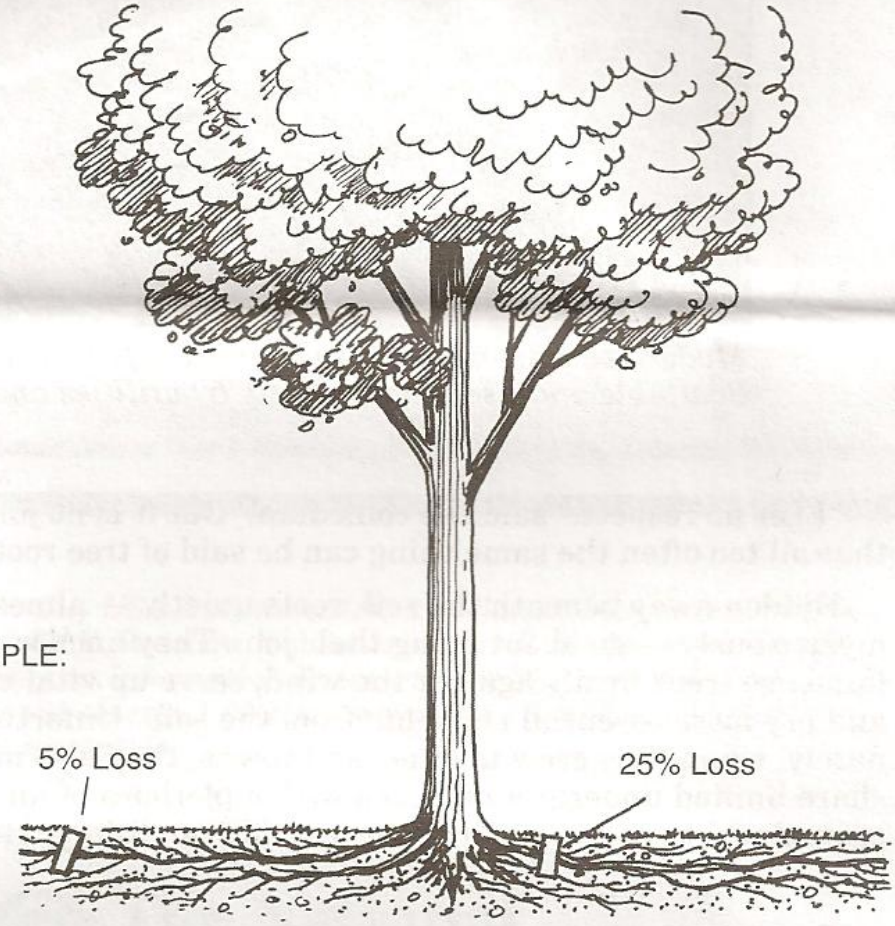
The second part of understanding tree roots are depicted in the following illustrations from the National Arbor Day Foundation. The first shows that a tree's root system is actually pretty complex; ranging from the larger support roots to the tiny , almost invisible absorbing roots. All are important to the health of the

tree, and they must be present in the correct proportions if they are to work together for the benefit of the tree. Damage to any part of the root system can throw the whole complex out of whack, at least for a while (until new roots are generated), and thus impair the health and vigor of the tree. A healthy root system means a healthy tree.



The second illustration shows how severe roots can be damaged, depending on where they are severed in relation to the trunk. The further away from the trunk (generally) the less the root system will be affected.

4. Root damage is proportional to how far a cut is made from the trunk of a tree.



A single root that is severed close to the trunk will shut off the work of a large network of vital roots.

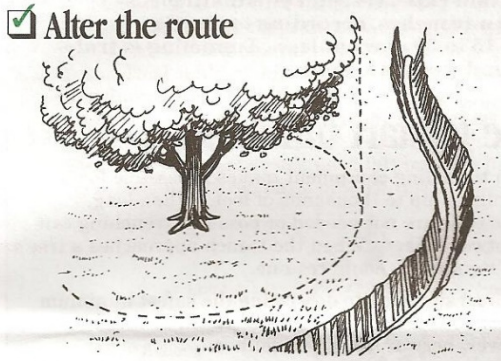
In future entries, I'll cover general ideas for preventing damage to roots when work must be done around trees.

Preventing Root Damage From Trenching
Friday, December 28th, 2012

Trenching and trees don't mix. Nothing says it better than this illustration from the National Arbor Day Foundation.

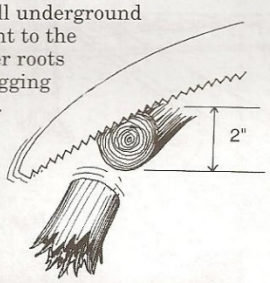
Trenches and trees don't mix! But when a trench—or ditch—is inevitable, here are some ways to minimize damage to roots.

☑ Alter the route



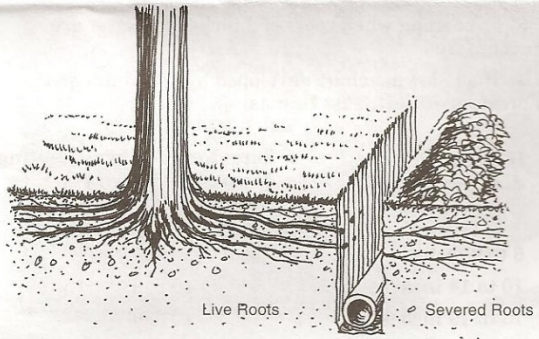
There is nothing sacred about straight lines or the shortest route between two points. When the health of trees are at stake, the small cost of additional material necessary for making a detour is often well worthwhile. Another method is to keep all underground utilities immediately adjacent to the driveway. There will be fewer roots there and it makes future digging less disruptive to vegetation.

☑ When you must cut roots, make sharp cuts



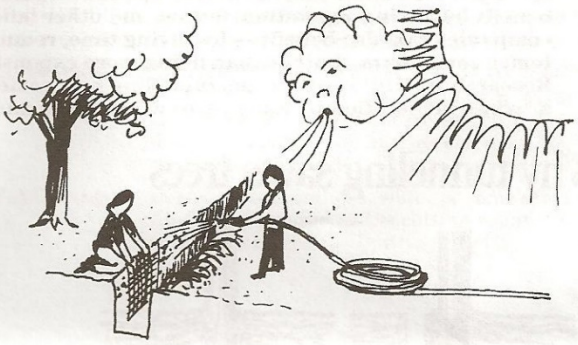
When roots 2 inches or larger must be cut, shovel by hand near the roots and saw the roots. Accidentally broken roots should be sawed a couple inches behind the ragged end. Crushed or torn roots are more likely to allow decay to begin; sharply cut roots produce a flush of new roots, helping the tree to recover from its injury.

☑ Work to the far side of the trench

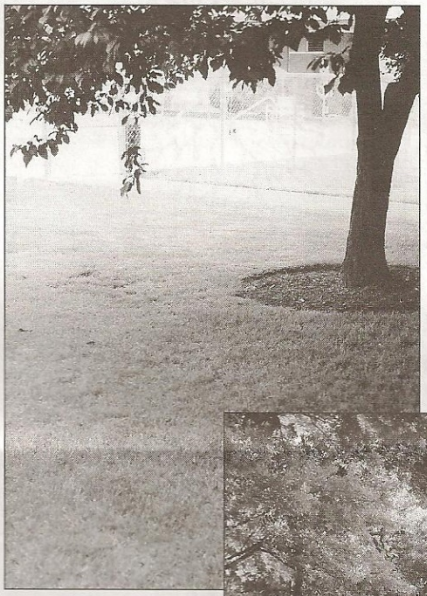


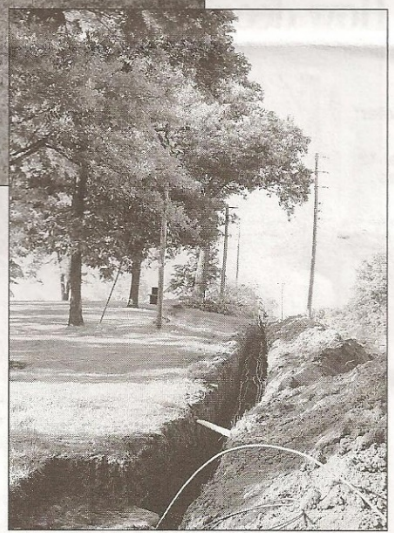
Keep the trench as far away from the trunk as possible, preferably outside the dripline. Then pile soil on the side away from the tree. When this is not possible, place soil on plywood, a tarp, or a thick bed of mulch. This is to help prevent cutting into the soil surface when the backhoe or dozer blade refills the trench.

☑ Keep root ends moist



Refill an open trench quickly. If this is not possible and the weather is hot, dry or windy, take steps to keep the root ends moist. A sprinkler system, mist from a hose, or wet burlap may help. Small roots can dry out and die in 10 - 15 minutes. Larger roots can succumb in an hour or less under unfavorable weather conditions.





Whether a gaping hole for utilities, or a barely perceptible slit for a sprinkler system, roots are severed just the same. When work is done near trees, insist that methods are used to minimize damage.