

MUNICIPAL ORCHARD MAINTENANCE GUIDE

In urban landscapes, municipal tree orchards serve as vital green assets, contributing to environmental health while also bridging food insecurity in underserved areas. Municipalities can play a crucial role in creating these orchards and ensuring their longevity and benefits to marginalized communities. Regular maintenance of new and established fruit trees ensures trees remain healthy and produce fruit.

New Tree Maintenance

Irrigation: Trees require consistent, thorough watering for at least three years post planting.

- Any newly planted trees that don't experience the equivalent of 1-inch of rainfall a week should be placed on a watering schedule.
- Know the soil texture at the planting location to understand its water-holding capacity.
- Establish a soil moisture monitoring protocol to ensure adequate water levels throughout the year (Figure 1).
 - Watering season for most trees mimics the growing season, approximately May 1 through to Oct 31.
 - Deciduous trees need no supplemental water when leaves are not on trees, approximately November 1 through to April 30.
 - Conifers and broadleaf evergreens should receive supplemental water throughout the fall and winter, approximately November 1 through to April 30.
- Newly planted trees should receive a minimum of 1 inch of water per inch of caliper per week.
 - To offset lack of water provided by rain or the water table at the site, newly planted trees should receive a minimum of 5 gallons of water per caliper inch at each watering.

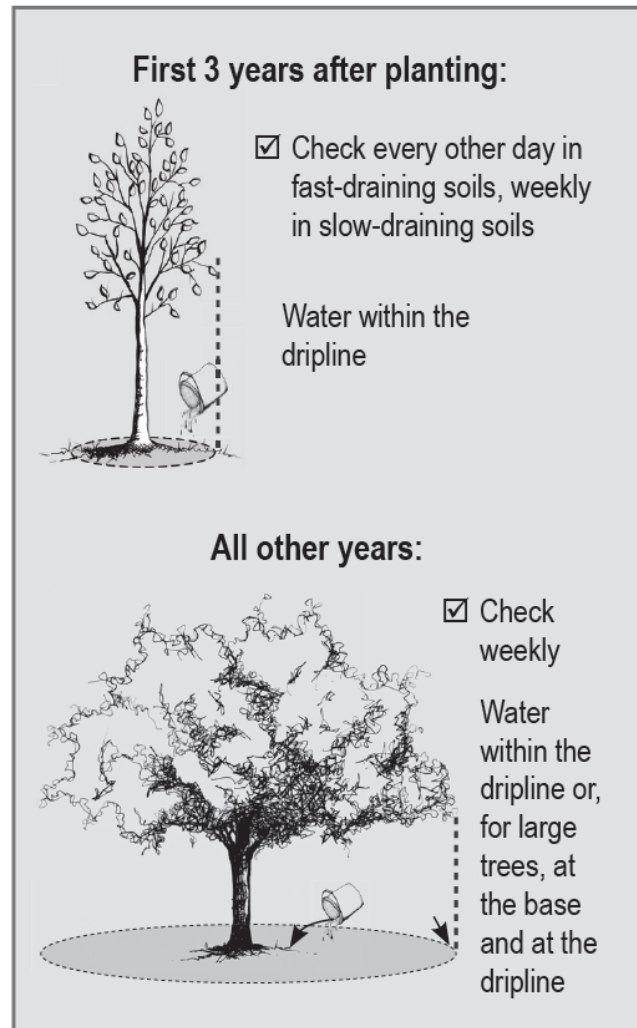


Figure 1: First 3 years after planting: If the soil is dry, provide about 1-1/2 gallons of water per diameter inch of the trunk. Source: US Forest Service Tree Owner's Manual. www.treeownersmanual.info.

- Several methods of irrigation can effectively water trees in natural areas, including hand-watering, irrigation bags, soaker hose, or bucket drip irrigation.
- Tall-sided irrigation bags should be used only when trees are a minimum 1.5 inches in caliper trees with branching starting above 3 feet.

Planting Circle Maintenance: Reduced environmental stresses, such as temperature extremes or weed competition, positively impacts tree health.

- Keep the initial planting circle clear of vegetation and other debris by removing it by hand or cutting it with a string trimmer, careful not to strike the tree trunk.
- If mulch maintenance is attainable or desired, use natural wood chips or shredded bark, needles, or leaves free of any extraneous material such as soil, stones, and debris.
- Replenish mulch as needed to maintain a 2 to 3-inch deep layer around the tree, leaving 3 inches around the trunk clear from mulch.
- Do not use weed killer near small or thin barked trees.

Tree Protection

- Rabbits and deer may browse on trees shorter than 3 feet tall.
 - Make a 4-inch wide and 32-inch tall wire cage to place around the tree (Figure 2).
 - Secure the cage to the ground with a stake.
 - Plastic tree guards are also effective.
- Voles, mice, and rabbits may damage stem cambium using wood to trim teeth.
 - Apply a repellent following labeled directions.
- Deer may damage stem cambium using the stem as an antler rub and beavers may damage stem cambium using wood to trim teeth or cut for use in dams.
 - Install loose-fitting 48-inch tall and minimum 4-inch diameter tree guards, made of wire or plastic mesh, around the tree trunk.
- All wildlife tree protection should be monitored seasonally and adjusted or removed as needed.
- Stakes installed at the tree's planting are typically removed after 1-year or one full growing season when they are capable of supporting themselves.

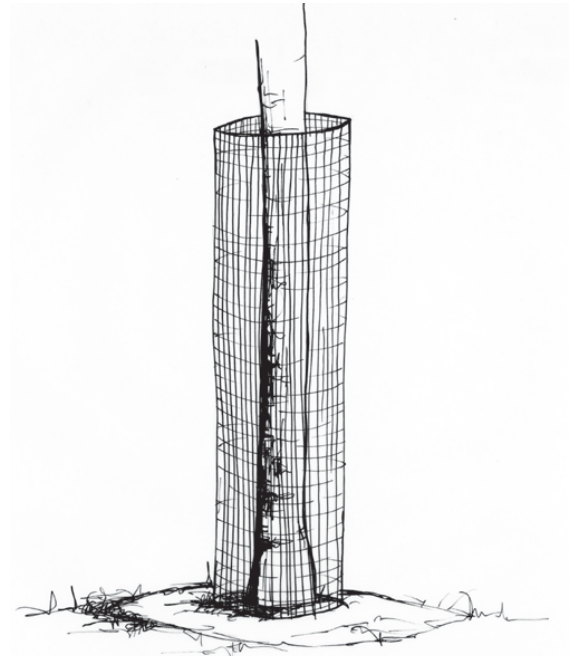


Figure 2: To prevent long-term damage associated with trunk wounding, install protection around the trunk. Source: US Forest Service Tree Owner's Manual. www.treeownersmanual.info.

Tree Health

- The majority of all pruning should happen during leaf off conditions and by a licensed arborist in accordance with ANSI A300 *Standard Practices for Trees, Shrubs, and Other Woody Plant Maintenance*.
- Lateral branching should be retained to deter deer from using the stem as an antler rub.
- After the first growing season, trees may be pruned to remove any dead, diseased, damaged, or dying branches (Figure 3).
- After the third growing season, trees may begin producing fruit.
 - Prune to encourage outward growth and maintain an open canopy structure to optimize sunlight penetration and air circulation. Thin out excessive or congested growth to reduce shading and improve fruit quality and ripening.
 - Consider the fruiting habit of the tree species when pruning, such as spur-bearing or tip-bearing, to promote consistent fruit production.
 - Be mindful of keeping appropriate-age wood for specific species: apples, pears, cherries and plums generally tend to produce the best crop on wood that is 2-3 years of age, while peaches typically produce best on 1-year-old wood.
- Tools used to prune shall be sharp and cleaned thoroughly with alcohol, hydrogen peroxide, or chlorine bleach before pruning. It is advisable to clean tools after each cut to limit the spread of pathogens from cut to cut and tree to tree.
- Treatment of cuts with wound dressing or paints should not be used.

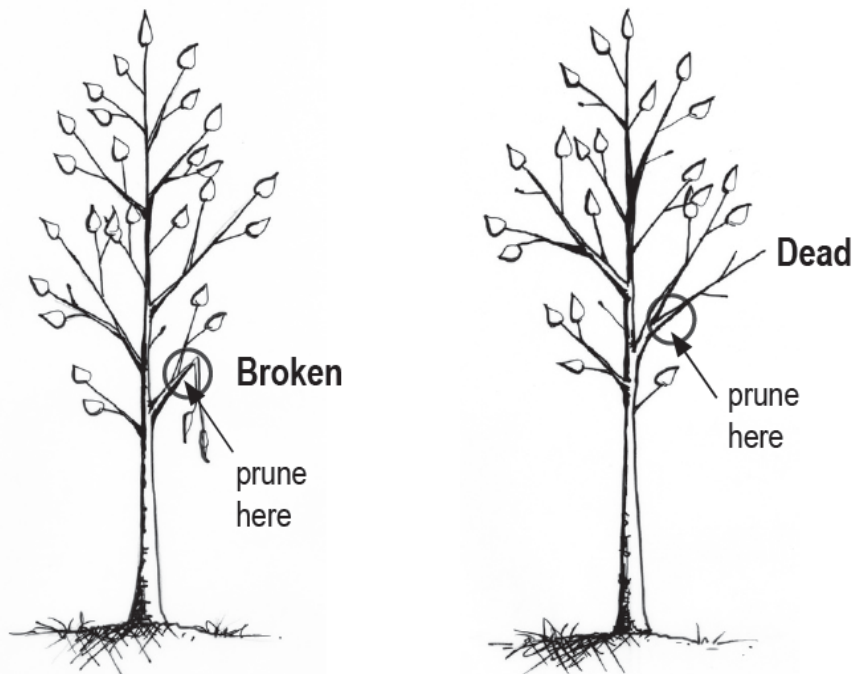


Figure 3: Prune only branches that are broken or dead. You may also remove competing leaders if present. Most trees should have one central leader. If there are two or more leaders, choose which one you want to remain and remove the other(s). Source: US Forest Service Tree Owner's Manual. www.treeownersmanual.info.

Established Tree Maintenance

Caring for trees in orchards involves a combination of regular maintenance tasks and attentive monitoring to ensure their health and productivity. Here are some essential steps for caring for trees in an orchard:

- *Monitoring and Record-Keeping:* Regularly inspect trees for signs of stress, disease, or pest damage, and keep detailed records of observations and management activities. This information can help identify trends and guide future orchard management decisions.
- *Pruning:* Regular pruning is crucial for maintaining tree health and promoting optimal fruit production. Prune to remove dead, diseased, or damaged branches, as well as any branches that are crossing or rubbing against each other. Proper pruning also helps shape the tree and improve air circulation within the canopy.
- *Watering:* Provide adequate water to the trees, especially during dry periods or when the trees are young and establishing their root systems. Water deeply and evenly, making sure the soil around the roots stays consistently moist but not waterlogged.
- *Fertilizing:* Apply appropriate fertilizers to supply essential nutrients to the trees. Conduct soil tests to determine the specific nutrient needs of the orchard, and then apply fertilizers accordingly. Typically, fertilization is done in early spring before bud break and again in late spring or early summer.
- *Pest and Disease Management:* Monitor trees regularly for signs of pests, diseases, and nutrient deficiencies. Implement integrated pest management (IPM) strategies to manage pest populations, which may include cultural practices, biological controls, and, if necessary, targeted pesticide applications. Prune out and dispose of any diseased or infested branches to prevent the spread of pathogens.
- *Weed Control:* Keep the area around the base of the trees free of weeds and competing vegetation, which can compete with the trees for water and nutrients. Use mulch to help suppress weed growth and conserve soil moisture.
- *Thinning Fruit:* Thin excess fruit from the trees to promote larger, higher-quality fruits and reduce the risk of branch breakage from the weight of heavy fruit loads. Thinning also helps prevent biennial bearing, where trees produce a heavy crop one year and a light crop the next.
- *Protecting Against Extreme Weather:* Take measures to protect trees from extreme weather conditions, such as frost protection during cold spells and providing shade or supplemental irrigation during heatwaves.

By implementing these practices and remaining attentive to the trees' needs, municipal orchards can effectively sustain healthy and fruitful trees, fulfilling a need within the local community.