

# TREE & SHRUB PLANTING GUIDE

Prepared by the Washtenaw County Conservation District

Seedlings and transplants obtained from the Washtenaw County Conservation District are intended for reforestation, windbreaks and screens, erosion control and wildlife plantings. They are adaptable, conservation-grade plants that will naturalize quickly. Although they may be used for landscaping purposes, that is not their primary purpose.

For landscape purposes, homeowners may be more satisfied with larger plants purchased from landscape nurseries. Landscape plants may offer more disease or insect resistance, better flower or fall colors and be less "wild" in appearance.

**GROWTH RATES:** All seedlings usually grow slowly for 2-4 years after planting or transplanting and more rapidly after that. A good root system must be developed before seedlings reach their optimum growth rates. Generally, rapid to moderate growth rate trees and shrubs will reach 5-6 feet tall in 7-9 years, while moderate to slow growth rate trees and shrubs will take 9-11 years to reach the same height. Soils, weather, weed and grass competition, and animal/human damage will effect growth rates.

## SUGGESTED PLANTING DISTANCES

PLANTING PURPOSE	EVERGREENS		HARDWOODS		SHRUBS	
<b>REFORESTATION:</b> Management, including thinning & weed control	<u>SPACING</u> 8' X 10' 10' X 10' 12' X 12'	<u># TREES / ACRE</u> 545 435 300	<u>SPACING</u> 12' X 12'	<u># TREES / ACRE</u> 300	<u># TREES / ACRE</u> NOT APPLICABLE	
<b>REFORESTATION:</b> No Management, let trees grow to maturity	12' X 12'	300	12' X 12'	300	NOT APPLICABLE	
<b>EROSION CONTROL</b>	6' X 6'	1210	NOT RECOMMENDED		6' X 6'	1210
<b>WILDLIFE</b>	8' X 10'	545	12' X 12'	300	6' X 6'	1210
<b>WINDBREAKS</b> 3 rows recommended: 2 rows evergreens 1 row shrubs	15 – 20' between trees and rows		GENERALLY NOT RECOMMENDED		6 – 10' between shrubs	

**SITE PREPARATION PRIOR TO PLANTING:** Proper site preparation reduces weeds, which compete for light, water and nutrients, and helps assure better seedling survival. When planting in bare soil, you may wish to plant a cover crop between rows of trees to prevent wind and water erosion. Choose the appropriate measures from the chart on Page 2, depending upon the number of seedlings being planted, equipment and time available.

## WEED CONTROL BEFORE AND AFTER PLANTING

WEED CONTROL METHOD	<u>LIGHT COVER</u> Moss, bare soil, sparse grass & weed clumps	<u>MODERATE COVER</u> Light quackgrass cover, moderate weed & grass clumps, run-out hay fields, etc.	<u>HEAVY COVER</u> Heavy quackgrass, weed & grass clumps, ferns, good hay fields, etc.
<b>MECHANICAL</b>	No preparation is needed.	Remove the sod layer within a 3' area around each tree site by hand or with plow. Cultivate or mulch during growing season.	Same as Moderate Cover, but remove the sod and vegetation the <u>fall before</u> planting.
<b>CULTURAL</b>	"Solarize" the soil to kill weed seeds and plants by covering the planting area with clear or black plastic for 7-10 weeks during the hottest part of summer the year before planting. The heat build-up will kill most weeds. Weed Mats can also be used, installed when trees are planted. Mulching with 3-4" of straw, wood chips, grass clippings or other organic material will help reduce future weed competition.		
<b>HERBICIDES</b>	Herbicides may be used to control vegetation initially and for 2-3 years after planting with repeat applications. Prior to planting, spot or band spray and area 3' around each tree site, particularly if there is Heavy Cover. <b>Certified Pesticide Applicators</b> may apply Simazine (Princep); <b>non-licensed applicators</b> (most land and homeowners) may use Glyphosate (Round-Up or Kleen-Up). Follow all label directions when applying any herbicide.		

**PRE-PLANTING CARE:** Plant seedlings as soon as possible after receiving them, keeping roots moist throughout the planting process. Exposure to sun and wind can kill a seedling in a short time. If necessary, mist or sprinkle tree roots with water to keep them moist. Do not soak roots in water for an extended time as the moisture retaining soil particles on the roots will be washed off, and the trees may drown. "Root Dip" or other water absorbent/retention materials may help conserve moisture in dry weather.

If you cannot plant immediately, store seedlings in a cool, shaded location for up to 7-10 days, misting or sprinkling roots with water each day. For storing a number of large bundles of trees, avoid poor air circulation and heat build-up by not stacking bundles in layers more than two bundles high. If planting is delayed more than 7-10 days, dig a trench in the soil in a shady area or corner of the garden. Place seedlings in the trench and cover roots with soil. Keep them evenly moist. Refer to Figure 3, page 4.

**PLANTING:** Spring: Plant in the spring as soon as possible after the frost is out of the ground. Fall: Fall planting is acceptable on light soils (sands, loamy sands and sandy loams), after seedling buds are dormant and until frost or snow interferes.

Plant seedlings with a tree planting machine, or by hand, using a planting bar, shovel, spade or other tool. Refer to Figures 1 & 2, Page 4. Dig a trench or hole deep and wide enough to permit the roots to spread out in a natural uncurled position. This helps avoid "J" or "L" rooting patterns, which occur when the hole is too shallow. Refer to Figure 4. Plant seedlings in a vertical position with the root collars approximately 1" below the soil surface to ensure adequate coverage of the roots with soil.

Firmly pack the soil around the roots to eliminate air pockets. Place seedlings in the middle of the prepared site to ensure maximum distance from competing vegetation. To reduce exposure time of roots to the air, remove one seedling at a time when hand planting and in small quantities when machine planting. Long roots may be pruned to 8" in length from the root collar, using a sharp knife.

**PLANTING (Continued):**

Seedlings may also be planted in nursery beds until they increase in size. Plant seedlings 12" apart, control weed competition and provide water as needed. Transplant them to their permanent location after 2-3 years in the nursery bed. Do so in early spring when the soil can first be dug and before buds begin growing. Dig as large of a root-ball as possible, leaving the soil attached to the roots. Plants left in the nursery bed for longer than 2-3 years may not transplant as well as when they are smaller.

**MAINTENANCE:** In general, check the survival and condition of seedlings the first and second year and replant as needed.

**Weed Control:** Control competing vegetation, where needed, during the first 2-3 years by mowing between rows, cultivating, mulching and/or herbicide treatment. Keep herbicides off seedlings to avoid damaging them. Protect seedlings by cutting the bottom out of a plastic gallon jug and attaching a broom handle or piece of dowel rod through the spout end of the jug. The jug can be easily placed over seedlings during herbicide treatment. A piece of wood stove pipe or furnace duct pipe also works good for this purpose.

**Watering:** If possible, during dry periods, water seedlings with one good soaking per week, totaling 1" of water. Discontinue watering in late August to encourage plants to become more winter hardy.

**Fertilizing:** In early spring of the 2th-4th years after planting, seedlings can be fertilized by sprinkling 1/4 pound of a balanced fertilizer like 12-12-12, around each seedling and working it into the soil. Fertilizer spikes, available at garden centers, or slow release fertilizer tablets sold by the Conservation District, can also be used.

**Animal Control:** Exclude livestock and pets from all plantings and protect from wild animals by using shelters, guards, repellents or fencing. The Conservation District offers shelters and repellents.

**Disease & Insect Control:** Occasionally diseases or insects may attack naturalized plantings. In most cases, control is not recommended, however. If pest problems become serious on landscape plantings, call the Master Gardeners at the Washtenaw County MSU Extension office (MSUE) for diagnosis and control recommendations. Telephone: (734) 997-1819.

**ADDITIONAL INFORMATION:** A variety of publications are available for a nominal fee, from the MSUE, that can assist you in managing your tree and shrub plantings. Some of these publications are listed below and can be ordered directly on-line from the MSU Extension Bookstore at:

<http://web2.msue.msu.edu/bulletins2/department/forestry-10138.cfm> .

- #E1172 Growing Christmas Trees in Michigan \$0.75
- #E2332 Identifying Trees of Michigan \$2.50
- #E2560 Control of Pine Root Collar Weevil \$0.75
- #E2653 Common Oak Defoliators in Michigan \$0.50
- #E2694 Identification and Management of European Pine Sawfly \$0.50
- #E2695 Identification and Management of Fall Webworm \$0.50
- #E2752PDF Herbicides for Year-of-Planting Weed Control \$0.50
- #E2812 Biology and Management of Pine Needle Scale \$1.00
- #E2938 Signs and Symptoms of the Emerald Ash Borer \$0.50

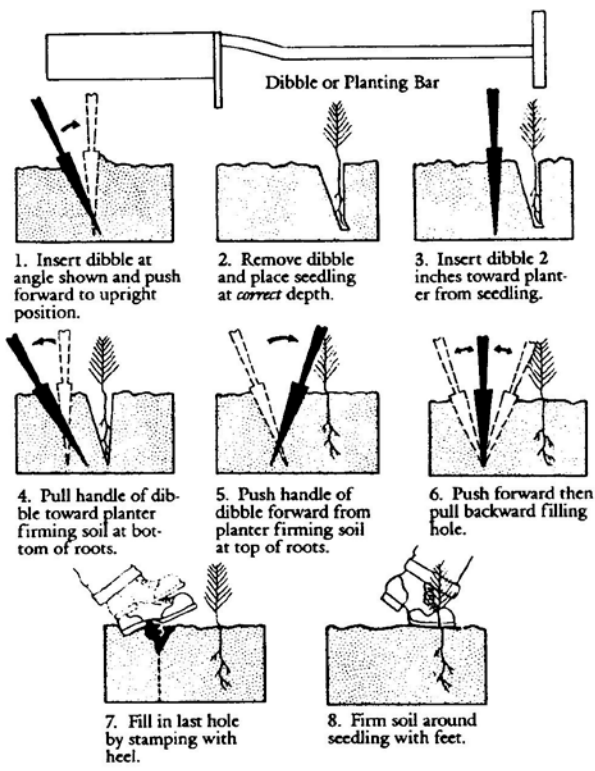


Figure 1 : Using a dibble (planting bar) to plant seedlings.

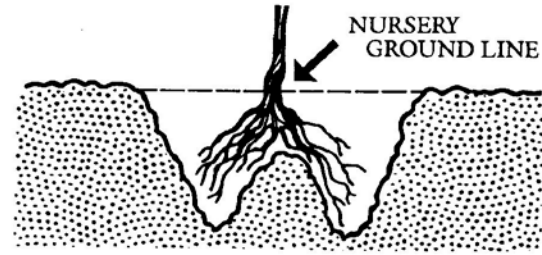


Figure 2 : An example of the hole and shovel method of planting seedlings.

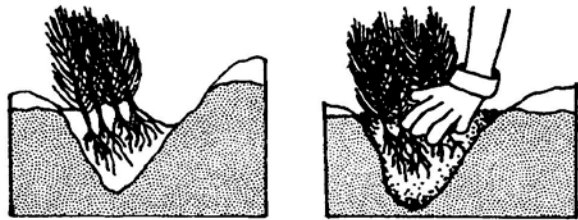


Fig. 3 . One method of long-term tree storage is the "heeling-in" technique. Roots must be packed tightly in soil and kept moist, and the heel-in trench must be shaded and protected from the wind.

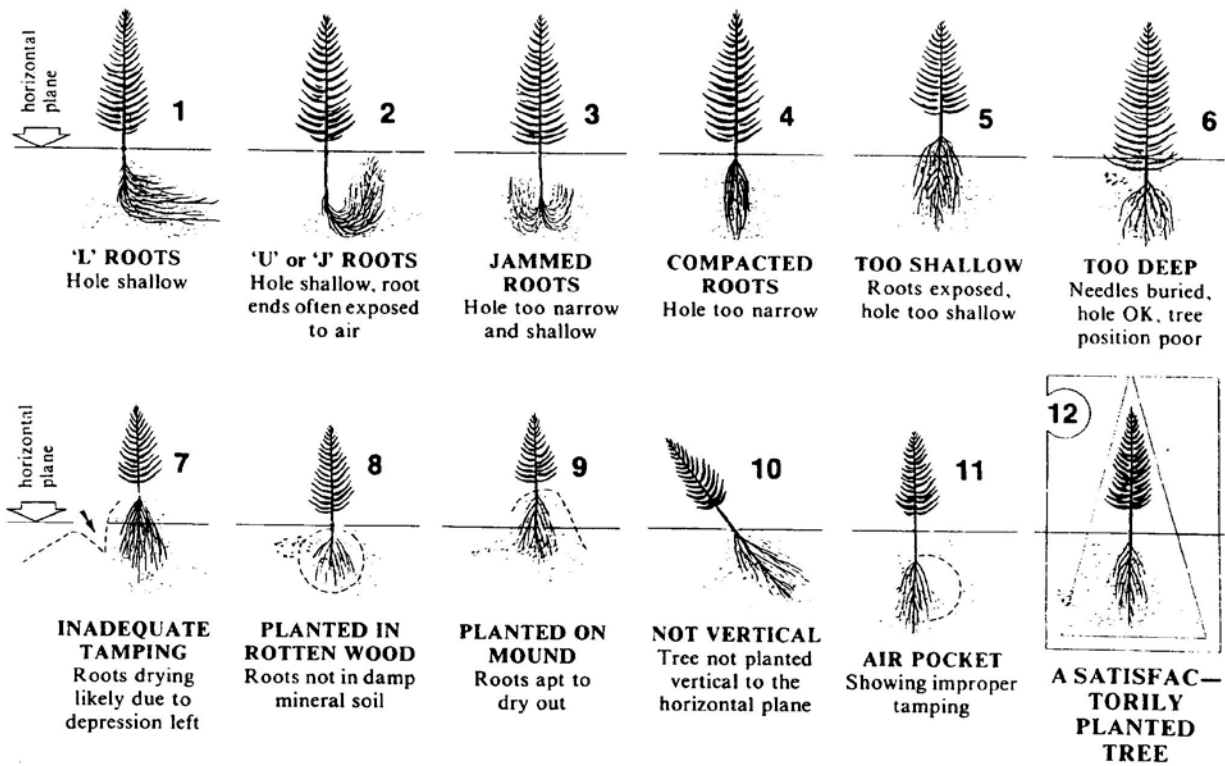


Fig. 4 . Drawings 1 through 11 illustrate various ways that trees should not be planted. The ideal planting is shown in drawing 12.