

## TREE & SHRUB PLANTING GUIDE

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 affect growth rates.

### GENERAL SUGGESTED PLANTING DISTANCES

PLANTING PURPOSE	EVERGREENS		HARDWOODS		SHRUBS	
	<i>SPACING</i>	<i># TREES / ACRE</i>	<i>SPACING</i>	<i># TREES / ACRE</i>	<i># TREES SPACING / ACRE</i>	
<b>REFORESTATION:</b> Management, including thinning & weed control	8' X 10' 10' X 10' 12' X 12'	545 435 300	12' X 12'	300	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	<i><u>LIGHT COVER</u></i> Moss, bare soil, sparse grass & weed clumps	<i><u>MODERATE COVER</u></i> Light quackgrass cover, moderate weed & grass clumps, run-out hay fields, etc.	<i><u>HEAVY COVER</u></i> 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 an area 3' around each tree site, particularly if there is Heavy Cover. <b>Certified Pesticide Applicators</b> might apply Simazine (Princep); <b>non-licensed applicators</b> (most land and homeowners) may use Glyphosate (Round-Up or Kleen-Up) but be sure to protect desired plants from unintended application, including drift. If possible, hand weed around base of tree to reduce possibility of herbicide damage. 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. If storing a large number of bundled 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:** In general, overcast, cool, still days are ideal since evaporation and moisture loss are reduced. 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. To facilitate planting, long roots may be pruned to 8" in length from the root collar, using a sharp knife.

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, water seedlings during the first growing season to encourage establishment. Especially during dry periods, provide one good soaking per week, totaling ~1" of water. It is better to perform fewer, but deeper watering events (vs. more frequent, shallow watering events) to encourage deeper root formation. If feasible, mulching around trees will also help retain soil moisture and discourage competing undesirable vegetation.

**Fertilizing:** Before fertilizing (and ideally before planting), it is beneficial to collect soil samples in the prepared planting area to send to a lab for analysis. This removes the guess work from determining what amendments might be required for successful establishment of the desired plants. Ultimately, paying the upfront cost of a test could save time, money, and protect the environment. If fertilizer is recommended, consider using slow- and controlled release formulations in granular, spike, or tablet form (the latter of which is available through the Conservation District). For more information on soil testing, please visit MSU's Soil and Plant Nutrient Laboratory at <https://www.canr.msu.edu/spnl/>

**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. However, in most cases, control is not recommended. If pest problems become serious on landscape plantings, call the Master Gardeners at the Washtenaw County MSU Extension office (MSUE) [(734) 997-1819] or The MSU Extension Lawn and Garden Hotline [(888) 678 - 3464] for diagnosis and control recommendations.

**ADDITIONAL INFORMATION:** Resources are available from MSUE that can assist you in managing your tree and shrub plantings. Some of these websites are listed below for convenience:

Home Gardeners:

[https://www.canr.msu.edu/home\\_gardening/trees-shrubs/](https://www.canr.msu.edu/home_gardening/trees-shrubs/)

Plantation Plantings/Production/Reforestation:

[https://www.canr.msu.edu/uploads/234/84939/Tree\\_Planting\\_in\\_Michigan.pdf](https://www.canr.msu.edu/uploads/234/84939/Tree_Planting_in_Michigan.pdf)

[https://www.canr.msu.edu/resources/forest\\_types\\_of\\_michigan\\_tree\\_planting\\_e3202\\_19](https://www.canr.msu.edu/resources/forest_types_of_michigan_tree_planting_e3202_19)

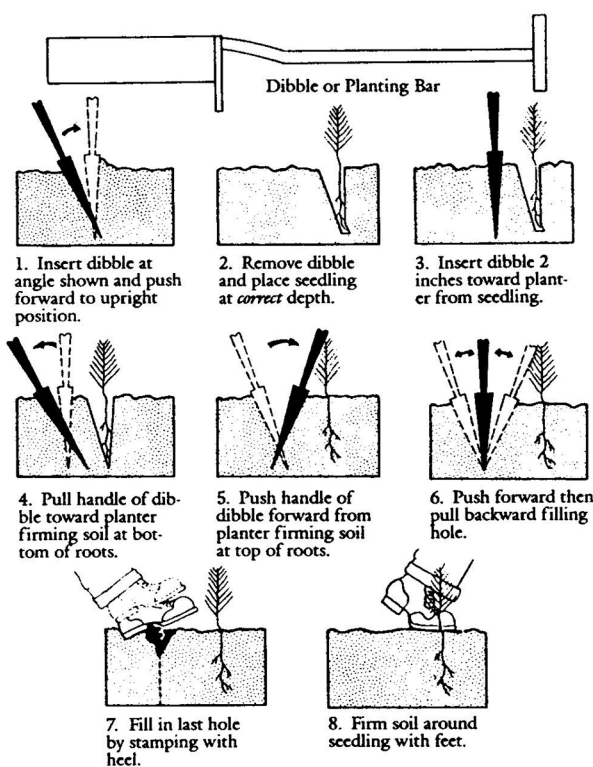


Figure 1 : Using a dibble (planting bar) to plant seedlings.

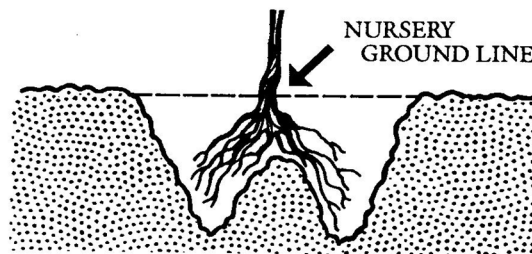


Figure 2 : An example of the hole and shovel method of planting seedlings.

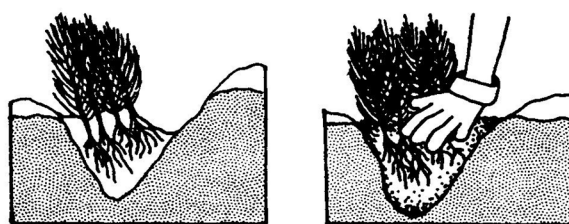


Fig. 3 . One method of long-term tree storage is the "heeling-in" technique. Roots must be packed tightly in soil and kept moist, and the heel-in trench must be shaded and protected from the wind.

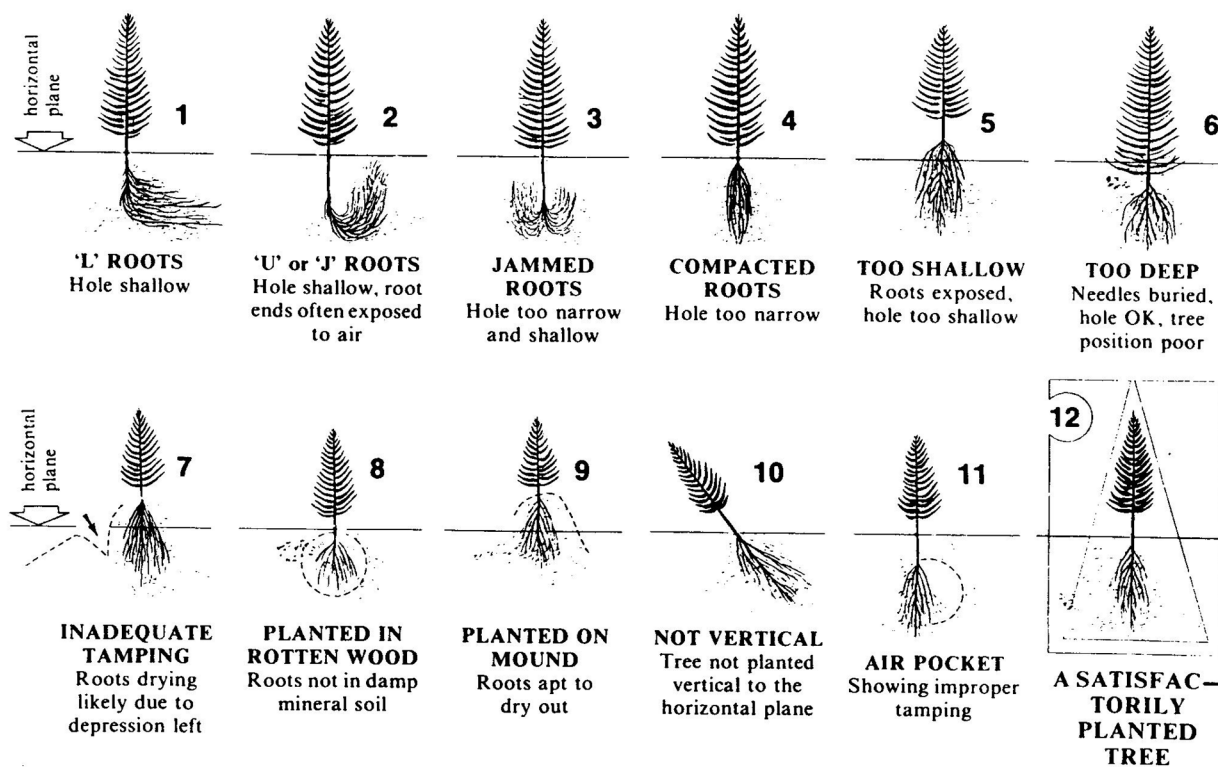


Fig. 4 . Drawings 1 through 11 illustrate various ways that trees should not be planted. The ideal planting is shown in drawing 12.