

Credits: 2

## Tree Planting and Establishment

We've all seen them everywhere- stressed trees, improperly planted and mulched without much hope for survival. Here is the latest on the correct methods for tree installation, mulching and aftercare. Why not minimize the expense of tree losses and labor to replace plants by giving them the best possible start?

### The Planting Hole

Taking a little extra time with the planting hole *now* will save a lot of time correcting problems that arise *later*.

In soils that have good structure, the planting hole should only be deep enough to hold the rootball. When soil is loosened at a greater depth, the plant usually settles after several irrigations, and water may collect in the basin created by the sunken plant. The plant may then be subject to invasion by decay organisms.

A good planting hole should be at least twice the diameter of the container or rootball. Holes dug in clay soils should be scarified, or roughened, with a shovel or other tool to prevent *glazing*. The smooth surface of a glazed planting hole can be impenetrable to plant roots. *Never* place gravel in the bottom of planting holes, unless the native soil is extremely well drained. A gravel layer does NOT increase drainage – it actually has the opposite effect, causing the soil above it to hold more water than it normally would have. Soil above the gravel layer must become completely saturated before water will pass into the gravel layer.

### Getting to the Root of it

You've created the perfect planting hole. Now just a little attention to the plant's root system will help it settle into its surroundings.

Bare-root plants should be pruned of dead, diseased, or broken roots. Containerized plants' roots should be scored or roughened up on the sides, or 2-3 vertical cuts made through the rootmass, and any circling roots on the bottom or around the sides should be removed or straightened. This will lessen the probability of girdling roots forming later.

*Butterflying* is a technique used to help establish containerized plants in heavy clay or extremely fine soil. The root mass is sliced vertically through the center from the bottom, and then pulled apart and spread on a mound of soil in the planting hole. This method may help plants establish by placing more roots in the area with friable soil, but it does *not* help to eliminate girdling roots.

Twine must be removed and burlap should be pulled away from the base of the plant, and either cut away below the soil surface or rolled back so no burlap protrudes above the soil. Synthetic burlap must be removed. Portions of wire baskets near the soil surface should be cut or removed. Expose the root flare of the plant, removing any soil that was pushed up onto the root flare.



Remove twine and pull back burlap, positioning plant in prepared planting hole.

## Placing the Plant

When placing the plant in the hole, make sure to orient it so that the best view of the plant is facing the way you want it to be.

Backfill planting holes with the native soil. It is not necessary in most instances to amend the soil. In fact, studies have shown that when amended soil is put in the planting hole, fewer roots will eventually penetrate the native soil. It is not recommended to fertilize at the time of planting; give the plant a year to establish, and then re-evaluate for the need to fertilize. Not only can fertilizing newly planted stock easily burn the plants, but it can promote excessive top growth which the developing root system can't support.

It is not recommended to prune newly planted trees or shrubs any more than to remove dead or damaged branches. However, remedial pruning to properly shape a young tree, establishing a strong branching habit, is recommended as long as no more than ¼ the total leaf area is removed. Topping is **never** recommended.

## To Stake or not to Stake

Staking is not always necessary or advisable. It is up to you or the job specifications to decide whether or not staking is warranted. Many young trees can stand alone, others will need support against prevailing winds and breakage in urban environments. Staking is unnecessary on shrubs and trees with branches close to the ground. Staked trees will develop less trunk taper and a smaller root system than trees that are free to move. In most cases when staking is warranted, a **single** stake placed on the upwind side of the tree is sufficient. The material used to attach the tree to the stake should be wide and flexible to prevent girdling. Slopes, extremely windy sites and municipal plantings may require two or three stakes.

Never place the stake in the planting hole! Stakes should be anchored firmly in undisturbed soil for stability.

## Mulching: Less is More!

Mulching newly planted trees and shrubs can be a very beneficial horticultural practice. It can also kill your plant.

Think wide, not deep, when you're mulching. Mulch depth should not exceed 2-4 inches, and should be spread evenly. Properly applied mulch should have a slight depression, or dish around the trunk.

Research has shown that mulch properly applied under young trees can *quadruple tree root density compared to young trees growing with turfgrass competition and no mulch.*

Other benefits of mulching:

- ☞ Reduced soil moisture loss
- ☞ Minimizes weed competition
- ☞ Keeps roots cool
- ☞ Reduces compaction and erosion
- ☞ May increase soil fertility

Mulch applied incorrectly can cause tree stress symptoms that can take several years to appear. The good news is that most



problems caused by mulches *can* be avoided. Mulch piled too deeply, and especially up against the trunk, can

*Improperly mulched and staked plant*

cause many problems. Tree bark is not designed to tolerate continual moisture. It becomes more vulnerable to Insect and fungus attack, and inhibited oxygen and carbon dioxide exchange. Microbes in damp mulch can decompose the bark along with the

organic matter in the mulch. Research has shown that diseases like Phytophthora and Armillaria root rots and verticillium wilt are more prevalent in plants that are heavily mulched. Heavy mulch can also provide shelter for rodents, who often feed on the bark over the winter.

Mulch applied too heavily can also compact together and, with decay fungi form a water impermeable crust.



*Raking out moldy mulch crust from too-deep mulch*

**Mulch materials** can include bark chips, pine needles, cocoa shells, gravel, and wood chips (dyed). *Black plastic should never be used.* There are pros and cons to many of these materials; for example, stone mulches can reflect heat and contribute to plant stress, pine needles can lower pH, and raw wood mulches like sawdust can cause a nitrogen deficiency to develop.



*Properly mulched tree. Note that mulch is kept away from tree base.*

## Aftercare

Taking the time to educate your customer on the proper care of the new transplant will save you money, labor to replant, and replacement plants. Proper watering is essential to the successful establishment of the plant. How much water should be applied is dependent on the soil type, drainage, and rainfall. In general, during the first season of establishment one inch a week is adequate, applied slowly. In drought or very sandy soil, two one-inch waterings may be necessary. Light sprinkling is of little use.

### So why take the time to do it right?

The most important word in Certified Nursery/ Landscape Professional is *Professional*. As a professional, your actions are a reflection on our industry. If we all adhere to the best, scientifically sound practices in our work, we all benefit, and in the end you benefit not only with personal satisfaction for a job well done, but financially with satisfied customers and fewer plant losses.

### References

**Arboriculture**, 3<sup>rd</sup> Edition, R.W. Harris, Prentice Hall 1998

*Proper Mulching Techniques*, Brochure, International Society of Arboriculture, 1998

*Mulch, Part 1: Too Much of a Good Thing can be Bad*, C. Carlson, Arborist News, December 2001, International Society of Arboriculture

*Mulch, Part 2: Go Wide, Not Deep*, C. Carlson, Arborist News, February 2002, International Society of Arboriculture

*Arbor Business: At Volcano Junction*, T. Smiley and B. Maynard, Lawn & Landscape, July 2002

*Mulches for Landscaping*, Donald A. Rakow, Cornell University Fact Sheet 2/94

**Certification Manual**, New York State Nursery/Landscape Association, 2013

## CNLP Credit Quiz

### Unit 1 *Tree Planting and Establishment*

January 2014

CNLP Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Business Name and Address \_\_\_\_\_

#### Please write correct answer in spaces at left.

- \_\_\_ 1. Why should gravel not be placed in the bottom of a planting hole?
- It causes the plant to settle
  - It causes water to wick out of the root ball
  - It causes the soil above it to retain too much moisture
  - Both a and b
- \_\_\_ 2. Containerized plants' roots should be prepared for the planting hole by:
- Scoring or cutting the sides
  - Cutting off the bottom 1/3 of the root mass
  - Removing or straightening circling roots
  - Both a and c
- \_\_\_ 3. Staking new tree plantings
- is always recommended
  - increases root growth
  - is often unnecessary
  - increases trunk taper
- \_\_\_ 4. *Butterflying* is a technique used to
- Prevent girdling roots
  - remove burlap from root ball
  - Prune nursery stock after planting
  - help establish containerized plants
- \_\_\_ 5. Synthetic burlap should be
- removed completely
  - rolled back away from the plant
  - sliced vertically in several places
  - left in place
- \_\_\_ 6. When pruning new transplants
- remove 1/2 the leaf area to balance the root mass
  - remove dead or damaged branches
  - remove all horizontal branches to establish good structure
  - both a and c

\_\_\_ 7. True or False: Symptoms associated with incorrect mulching will show up within 3 months.

\_\_\_ 8. True or False: Tree stakes should always be positioned within the planting hole.

\_\_\_ 9. True or False: Heavy mulch can form a water impermeable crust.

\_\_\_ 10. True or False: New plantings should always be fertilized to aid establishment.

\_\_\_ 11. True or False: It is usually not necessary to amend soil that is backfilled into the planting hole.

\_\_\_ 12. True or false: Heavily mulched plants are more prone to soil borne diseases.

\_\_\_ 13. True or False: Plants should be planted slightly lower in clay soil than in sandy soil.

\_\_\_ 14. True or False: Light occasional sprinkling is adequate for tree establishment.

\_\_\_ 15. True or False: Microbes in damp mulch can decay the tree bark tissues.

Passing grade is 80%

#### Mail this completed sheet to :

Birchcrest Tree and Landscape, Inc.  
1028 Bay Rd., Webster NY 14580  
Attn. Jody Mills

***All credits will be banked. You will only be notified if passing grade was not achieved.***

*This unit prepared and compiled by  
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