

## Seedling Transportation

1. Reduce transportation time as feasible.
2. Transport seedlings in the morning or evening when temperatures are cooler.
3. If using an open vehicle, cover seedlings with a tarp and tie down. Do not over tighten tie down straps as this can cause damage to seedlings.
4. If placing seedlings in a car trunk, minimize travel time. Trunks heat very quickly and don't provide adequate air circulation.
5. Park in the shade.

## Seedling Storage

1. Handle with care.
2. Plant seedlings as soon as possible or within 7 days of picking them up from the nursery.
3. Store seedlings in a cool, dry place in the shade.
4. Never leave seedlings in direct sunlight.
5. Maintain humidity at 90% - 95%
6. If possible, store seedlings in a cooler, but do not allow them to freeze. Household refrigerators contain dehumidifying properties that damage seedlings. Store seedlings between 33 degrees F & 50 degrees F.
7. Protect seedlings from temperature extremes & wind.
8. If stored outside, cover seedlings with reflective tarp.
9. Allow space for air circulation between seedling bags.
10. Do not allow the seedlings to freeze or allow inside bag temperatures to reach 50 degrees F.
11. Do not submerge roots in water. A root gel may be used to keep roots moist.

## Field Handling

1. Store seedling bags in shade or under reflective tarp.
2. Keep seedling root exposure to an absolute minimum. Do not allow seedling roots to dry out.
3. Open only one bag of seedlings at a time. Keep remaining bags in a cool shady place until needed.
4. Remove only a small bundle of seedlings at a time for hand planting.
5. If hand planting use a seedling bag. Seedling bags can be found online at Forestry Suppliers.
6. Transfer trees from seedling bags to hand planter bags/machine planter bag quickly.
7. Do not shake off or remove dirt from roots
8. Avoid pruning if possible.

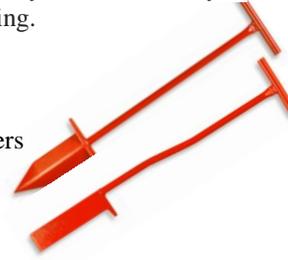
## Tools

**Planting Bar/ dibble bar** is an easy & effective way to plant seedlings when hand planting.

**Price:** Avg. \$30 - \$40.

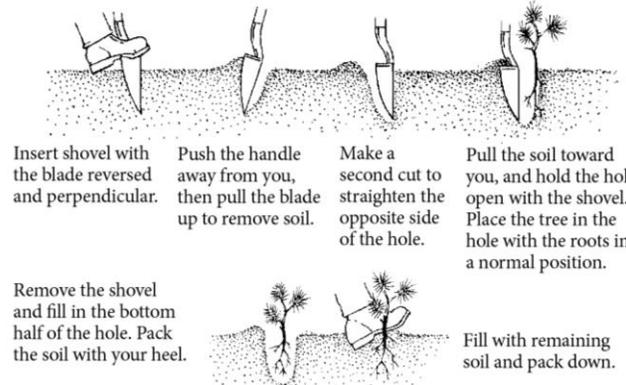
**Where to Buy:** Forestry Suppliers or your local agricultural supplies source.

Photo by: [www.forestrysuppliers.com](http://www.forestrysuppliers.com)



## How to Plant using a Shovel or Planting Bar

### Hand Planting with a Shovel



### Hand Planting with a Bar

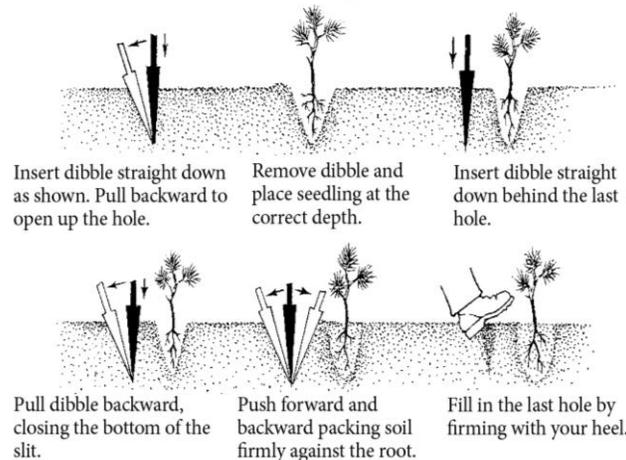


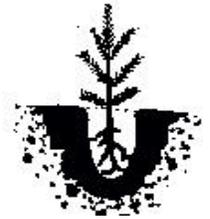
Photo by: [www.uihere.com](http://www.uihere.com)

## Correct Depth to Plant

**Too Shallow:** Some roots are exposed above ground level.



**Too Deep:** Much of the stem is underground level.



**J-Root:** Roots are forced into the hole, causing root ends to be facing up.



**Just Right:** Root collar is even with ground level; roots running down.



Photo by: [www.engledow.com](http://www.engledow.com)

## Tree Shelter Maintenance

1. Re-drive and straighten any leaning stakes & shelters.
2. Remove bird nets when the top of tree, aka terminal bud, is about 4 inches from the top of the shelter. If the net is not removed, the terminal bud will get tangled in the net, curl up and possibly break.
3. Pull any weeds and vines that grow inside of shelter with your seedlings.
4. Loosen bottom zip ties on shelters for trees that develop root firmness and begin to hold steady in winds. This will strengthen the trunk and prepare the tree for shelter removal.
5. Shelters can remain on the tree for +- 5 years. Remove shelters from trees with 1" between their trunk and the shelter. You DO NOT want the trunk of the tree to rub tightly against the shelter.

## How to Install a Tree Shelter

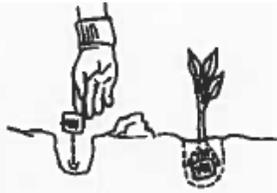


Fig. 1: Prepare site and plant seedling according to nursery or forester instructions.



Fig. 2: Gently slide Tubex treeshelter (flared end up) over the seedling.



Fig. 3: Push base of the shelter 1" into the soil. If the ground is too hard, mound soil around the base to form a seal.

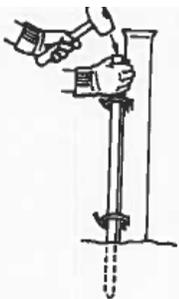


Fig. 4: Insert white oak stake into the two ties and drive into the ground until the top of the stake is 2-3" above the top tie.

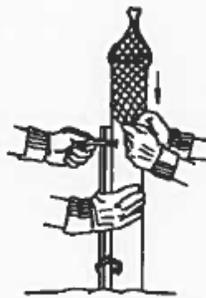


Fig. 5: Cinch the tie to securely fasten the stake and pull the mesh netting down over the flared end.

## Heeling in Leftover Bare Root Seedlings for Replants

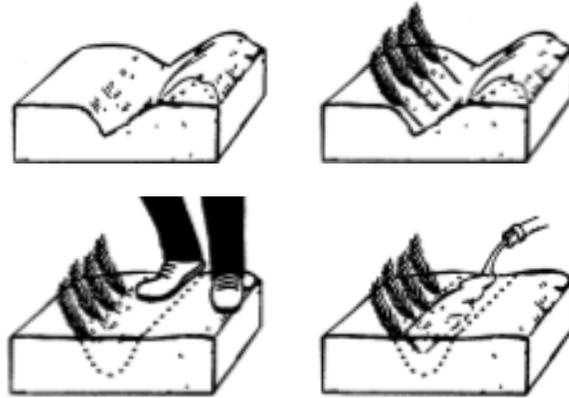


Photo by: woodlandstewardship.org

1. Soak roots in water for 4 to 7 hours.
2. Dig a trench that is deep and wide enough to accommodate the roots. If winter, dig near building foundation. If summer, dig in shady area.
3. Lay the plant in the trench with the plant at an angle so that the canopy is just above the trench and the roots are in the trench.
4. Fill in the trench with soil.
5. If summer, the plant can be heeled in for about a month. If winter, the plant can be heeled in for the winter, but should be dug up in the spring.



Larry Hogan, Governor  
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# Bare Root Seedling Planting Guide



Photo by: Brittany Haas, MD Forest Service

