



# Planting Tree Seedlings

*Christopher Reeves, Forestry*

In Kentucky, where the forests are dominated by deciduous hardwood trees (ex. oaks and maples), natural regeneration processes repopulate most woodlands after a timber harvest or natural disaster through established seedlings, stump sprouts, or seed. But what if a brand new woodland is desired in an area where there are no trees such as a pasture or crop field? The most cost effective way to create an acre or several acres of woodlands is to plant seedlings. This factsheet reviews common issues and provides advice on planting tree seedlings to establish a new woodland. However, this factsheet cannot replace on-the-ground expertise! Woodland owners should consider talking to a Service Forester from the Kentucky Division of Forestry (KDF) when planning a large scale tree planting project.

## Where Are Those Trees Going?

Afforestation is the process of establishing tree cover on an area where there previously was no trees such as a pasture or crop field. The first key to success in establishing a new woodland through seedling planting is ensuring they will survive in the area being planted. Planting seedlings in pastures while the cows are present is not a good start for new woodlands. The most common afforestation takes place in fields that were formally cropland or pasture. Establishing a woodland in an area that has recently had row crops (less than one year) is ideal. These areas will be free from weeds and woody stems. Seedlings can generally be planted right away once the crops are removed. If weeds, fescue, or other plants are present in an area, they must be controlled. This generally will require the use of herbicides. Before using any herbicides, please review the references that can provide detail on herbicides to use, when to use them, and how to stay safe during their application.

Reforestation through planting does occur in some cases. A new plantation could be established where an old one was just harvested. Planting also may be useful to change the species composition in woodlands with enrichment plantings of seedlings. Revegetation and stabilization of skid trails and landings could be improved by planting seedlings as well.

## Purchasing and Handling Seedlings

Seedlings can be purchased from many nurseries throughout the eastern region of the United States. It is best to purchase seedlings from seed sources that are from or near Kentucky as they will be best acclimated to our growing conditions. KDF has two tree nurseries that provide dozens of species in bundles of ten or one hundred seedlings per pack. Seedlings can be shipped or obtained directly at the nursery from January to April each year. KDF recommends to only take delivery when the seedlings are ready to be planted. Plant them as soon as possible since any delay will decrease the chances of survival. Seedlings must stay cool until they are planted.



**Tree seedlings are available locally from the KDF nurseries.**

*Jeff Stringer, UK Forestry Extension*

When planting, place the seedlings in a bucket and keep the roots covered with thin mud or water at all times. Only pack enough seedlings that can be planted in a few hours and carry the bucket out to the planting site. Remove and plant one seedling at a time. Storing the roots outside water or mud or carrying them in your hands will cause them to dry up and die. It doesn't take long for the sun or wind to dry out roots.

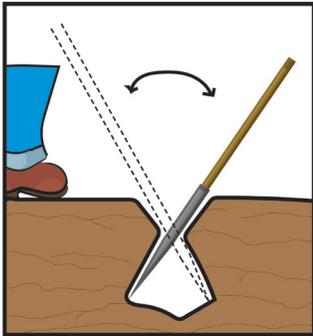
## Techniques for Successful Planting

The quickest method to plant seedlings is to use a tractor and a tree setter. Contact KDF on how to rent, borrow, or use this machinery. Tree setters are best for jobs with greater than 1,000 seedlings. Unfortunately, trees planted with the help of machinery is not an option for most people because of the expense and steep terrain.

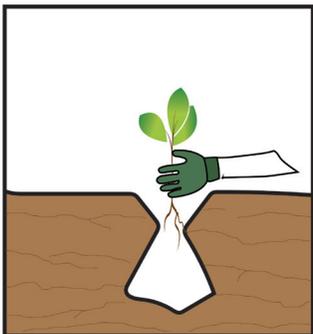


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To plant by hand, the right tool must be used. A dibble bar, grub hoe, tiling spade, planting bar, or any other flat-bladed tool should be used to make a small slit in the ground for proper seedling planting. The blade size needs to be large enough to make an adequate size hole for the roots of the trees you are planting. **The planting process is as follows:**



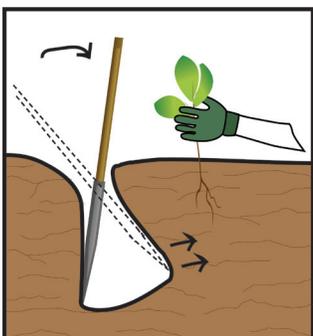
(1) Insert the dibble bar or other tool straight into the ground, pull backward on the handle and push forward to make a small hole.



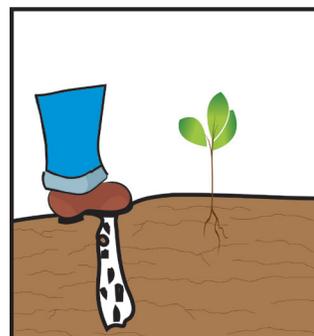
(2) Remove the dibble bar and push the seedling into the hole. Shake the roots free and pull the seedling back up to where the root collar is at ground line.



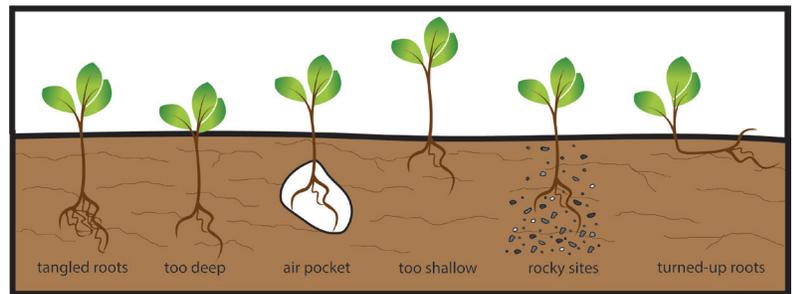
(3) Move six inches back and insert the tool straight into the ground again and pull the bar handle toward yourself firming up the soil at the bottom of the roots.



(4) Push the handle away to firm up the soil at the top of the roots.



(5) When the hole of the seedling is closed, fill in the last hole by tamping it with your heel.



**Avoid these common problems when planting seedlings.**

Several potential errors must be avoided when planting seedlings. Firming up the roots around the seedlings to avoid air pockets will allow the roots to properly grow in the soil. The roots must be untangled to eliminate the chance of them growing into and around one another and choking off the main tap root. Seedlings must also be planted so the root collar is at the ground level. If there are any roots showing they are not planted deep enough. Since soil often settles in tree planting holes the root collar should be planted about an inch deep. Planting slightly deep is much better than too shallow.

This factsheet has highlighted a few of the important steps in proper preparation and planting techniques of seedlings. Contact a professional forester and seek technical information about planting hardwood seedlings well before undertaking any planting. With the information provided here and in other sources, seedling plantings can be successful and provide benefits to current and future generations.

**For More Information**  
**Kentucky Division of Forestry:**  
<http://forestry.ky.gov>

**University of Kentucky**  
**Department of Forestry:** <http://ukforestry.org>

## References

- Stringer, J., W. Clatterbuck, and J. Seifert. 2009. Professional Hardwood Notes: Site Preparation and Competition Control Guidelines for Hardwood Tree Plantings. University of Kentucky College of Agriculture Cooperative Extension Service. FOR-107. 36 p.
- Hill, D. Kentucky 4-H Forestry Project. University of Kentucky College of Agriculture Cooperative Extension Service. 4DF-03PC. 12 p.