

Selecting Forest Seedlings for Use in North Carolina

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Rule #1 – Determine the desired outcome of your planting

- Timber production, environmental enhancement and wildlife objectives each dictate different species selection and seedling parameters.
- What you decide upon now will determine your management options for this day on. Simply put, what you start with is what you finish with.

Rule #2 – Match the species to the site

- The most common mistake is to plant desired species on sites that are inappropriate for them.
 - Examples:
 - Planting Loblolly pine on sites where Longleaf is more suitable
 - Planting bottomland hardwoods in upland settings
 - Planting species outside their native range

Rule #2 cont. – Match the species to the site

- What is already growing in the area?
- What species are they?
- Are these trees healthy and fast growing?
- What products do you desire?
- Will the land be hunted or grazed?
- Is the area prone to local disease hazards?
- Is the land vulnerable to wildfire or arson?
- What is the likelihood of flooding, extreme drought, or ice storms?

Rule #3 – Use as local of a seed source as possible

- Using local seed sources or seed sources that have been tested and proven to be acceptable in your area is critical.
- Moving germplasm over long distances can cause unforeseen problems such as winter hardiness failure, reduced growth, poor survival and the seedlings genetic “calendar” to be out of sync with where they are planted.

Rule #3 cont, - Use as local of a seed source as possible

- Guidelines have been developed by R.C. Schmitling of the US Forest Service for moving seed sources of the Southern Pines and are published in United States Department of Agriculture Forest Service **Southern Station** General Technical Report SRS-44, Southern Pine Seed Sources.

Rule #3 cont, - Use as local of a seed source as possible

- According to Schmidting, things you could expect by moving to seed source from the warmer end of the species range would be:
 - Faster growth
 - Somewhat lower survival
 - Possibly less resistance to ice and cold
- As you move colder climate sources to warmer sites, you could experience:
 - Slower growth
 - Increased survival
 - More resistance to ice and cold

Rule #3 cont, - Use as local of a seed source as possible

- Schmidting concludes:
 - It is acceptable to use seed sources from +/- one plant hardiness zone from your location
 - It is acceptable to use seed sources from +/- one adjacent isotherm of 5 degrees F, which is the same as a plant hardiness zone.
 - Reaching into the outer limits of a zone may be as risky as leaving it.

Rule #4 – Verify that seedlings are of an acceptable source

- Just because a nursery is located in an acceptable seed source area doesn't mean that all of its seedlings are suitable for your location.
- Forest nurseries often serve entire regions and may offer seedlings whose source are from far away as well as nearby.
- If you are unsure then ask. Most nurserymen are glad to help and their success is dependant on your success.

Rule #5 – Seek out and plan to acquire the most genetically improved stock that you can afford that meets your minimum objectives

- The Southern Pines have been undergoing genetic improvement for decades.
- This improvement comes in the way of increased height and volume production, increased disease resistance, improved stem straightness and decreased forking.
- These traits are most desirable for intensive forest products management regimes
- Third party certification for improvement and testing is provided by the NCSU Tree Improvement Cooperative for its members for loblolly pine selections

Rule #5 cont. – Seek out and plan to acquire the most genetically improved stock that you can afford that meets your minimum objectives

- Put the most improved selection only on the best sites.
- Hardwood improvement is less advanced but improved selections of some species are available.
- In some regimes such as wetlands and stream restoration, improvement may not be needed at all if forest products are not a significant desired end output.

Rule #6 – Understand the alphabet soup

- OP – means open pollinated. The mother tree is known but male pollen source is unknown. Also known as half-sib(ling) families.
- MCP – means mass controlled pollinated. They are full sibling crosses where both the mother tree and the male pollen are known.
- OM – means orchard mix. The seedlot is composed of several families grown together
- SF – means single family. The seedlot is composed of seed from one family selection.
- Varietal – a seedling that is a genetic clone from one original tree (ortet). Each seedling is an identical copy of the next.
- PRS – short for Loblolly Pine Performance Rating System©. Members of NCSU Tree Improvement Coop use this system to compare family traits in loblolly pine families.

Rule #7 – Use what you now know to find a supplier who can meet your needs

- Forest nurseries vary greatly in the number of species that they produce, the level of improvement offered and the services they provide.
- It is best to do your homework well before you are ready to plant to make sure that you can get what you want.

Suppliers in or near North Carolina that can help

Note: This list is not considered an endorsement of any particular nursery nor is it to be considered all inclusive. Errors and omissions are purely accidental.

- North Carolina Forest Service, 1-888-NCTREES
www.dfr.state.nc.us
- Weyerhaeuser Company, 1-800-344-0399
www.weyerhaeuser.com/Businesses/SouthernSeedlingSales/Contact
- Arborgen, 1-800-222-1290 www.arborgen.us
- Bodenhamer Farms & Nursery, 910-422-8118
Louie@BodenhamerFarms.com
- Virginia Dept. of Forestry, 540-363-7000
www.dof.virginia.gov/nursery/index.htm
- SC Forestry Commission, 803-275-3578
www.state.sc.us/forest/nur.htm