# Shortleaf Containerized Seedlings: Delivering Performance

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Container seedling production has increased significantly over the last several years. Because container seedlings survive and grow better, they are often preferred, especially for species that are difficult to establish or those seedlings with a higher level of genetic value.

**Ordering and Receiving Seedlings**
Supply of shortleaf seedlings always tends to be limited since it is a niche species with low demand. In order to ensure the best selection of seed sources and genetics, order your seedlings in January through May of the year before you intend to plant.

Container seedlings are packed for shipping in wax coated boxes with a polyethylene liner. Each box holds 300 seedlings. Large quantities of seedlings are usually shipped on refrigerated trucks. Seedlings can be stored in refrigeration from 6 to 8 weeks. Seedlings should be planted as quickly as feasible from the time of delivery. Planting times for container shortleaf seedlings are from October 1 through May 1. The key consideration is having soil moisture before planting.

**Tree Improvement**
N.C. State Tree Improvement and the Western Gulf Tree Improvement Cooperative have current working tree improvement projects with shortleaf pine. These cooperatives provide genetic data and research for producing the best seedlings. Improved seed sources are available from North Carolina, Virginia, Arkansas, Georgia, Texas and Louisiana. Shortleaf is naturally found from New Jersey to Texas. Shortleaf pine offers several attributes that are attractive to landowners. These include the following: excellent wood properties, strong resistance to fusiform rust, excellent tree form, small knots, drought tolerance, high-quality wildlife habitat, and fire tolerance.

*Figure 1: Shortleaf pine containerized seedlings. Credit: Wayne Bell*

**Container Seedling Specifications**
Although there are no studies identifying an ideal container plug size, experience shows that a plug with 5.6 cu. inches or greater works well for nursery production and field performance. Shortleaf container seedlings should have the following specifications ideally:

- Seedling height: 8 to 10 inches
- Root collar diameter: 4.0 to 4.8 mm
- Seedling root: Firm and stays intact

**Other Considerations**

A normal characteristic of shortleaf seedlings is a crook at the ground line for seedlings. As genetic programs have advanced, seedlings with normal straight stems are becoming more the norm. There is a current debate on why this is occurring. One theory is that loblolly and shortleaf are hybridizing in seed orchards. Genetic programs select trees for better growth, form, and disease resistance. Therefore, these programs could be favoring hybrids as they may grow faster. Most shortleaf breeding orchards are near loblolly breeding orchards, which could aid this process.

There is some concern over how deep seedlings should be planted. Some practitioners are questioning if the crook should be below the soil surface if resprouting is desired. Research todate shows that deep planting does not affect resprouting and improves initial survival[1].

Field results with container-grown shortleaf pines have been very consistent with survival rates often in the high 80 percent to low 90 percent range. This marked improvement over bareroot is due to the fact that container seedlings take 100 percent of the root system to the field providing better root establishment and less transplant shock.

Growth has been encouraging with trees in Arkansas being as tall as 8 feet in 3 years. Specific growth on your site will depend on the quality of the soil and the degree of competition control at establishment.

## References


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