

# Why Plant Pine After Southern Pine Beetle?

Wayne K. Clatterbuck  
Larry Tankersley

The University of Tennessee  
Agricultural Extension Service  
Dept. of Forestry, Wildlife & Fisheries

1. **Site Quality** --- Most southern pine beetle areas occur on marginal sites that are better suited for pine (both ecologically and economically) than hardwood. These sites are often low in nutrients required for hardwood growth or agricultural crops. Hardwoods are more site-demanding than pines. Although various hardwoods will survive on these sites, they are not as prosperous and will not produce the “quality” hardwood sawtimber that brings the most income. Hardwoods are more sensitive to weather fluctuations, particularly the late summer droughts that frequently occur on these shallow, dry soils. Pine will produce a product on these marginal soils in a shorter time period than hardwoods.
2. **Ease of Planting and Seedling Cost** --- Pine seedlings are cheaper and easier to plant than hardwoods. Seedling costs for pine average \$40 per 1000 seedlings while hardwoods such as yellow-poplar and oaks average \$250 per 1,000 seedlings. Pine seedlings are much more uniform in size and less costly to plant than hardwoods.
3. **Economics and Returns** --- Pine is more valuable on the timber market than the red maple, low-grade oaks and sweetgum that generally occur on these poorer sites. Pines are cheaper to establish and are grown at shorter rotations (20 to 30 years) than hardwoods. Establishment and management costs are recovered quicker with the shorter rotations. Annual rate of return for pine in Tennessee averages 10 to 12 percent per year. Refer to UT Extension Publications PB 1462 (White Pine) and PB 1466 (Loblolly pine) for typical financial analyses in growing these species.
4. **Risk to Further Southern Pine Beetle Attack** --- Over the next 60 to 80 years, there is probably a 100 percent chance that you will have to deal with southern pine beetles (SPB). They are a native pest, are always present and tend to build to outbreak population levels every 8 to 10 years. However, in any one year, the probability of beetle attack is about 0.01. Our skills as pine managers will be tested to monitor, manage and capture the value of these trees before potential losses to SPB. The key is to manage these stands so that they remain healthy, vigorous and less susceptible to SPB. Consider that most of the trees killed during this outbreak survived 3 to 5 earlier SPB outbreaks over the last 60 years.

5. **Species** --- Several pine species are available for planting in Tennessee. Each species has its advantages and disadvantages. The species selected will depend on the site, management objectives, product objectives and costs.
- a. Shortleaf pine: Long-lived tree with dense wood and straight form. Shortleaf is less susceptible to ice than loblolly and white pine, but grows slow and is highly susceptible to SPB. The market for shortleaf is primarily sawlogs, which requires longer rotation lengths. Seedlings are sometimes difficult to find.
  - b. Loblolly pine: Fast growth, widely available, inexpensive seedlings. Usually grown at shorter rotations for pulpwood or sawlogs. Loblolly pine is particularly susceptible to ice storm breakage when young and SPB. Grows on a variety of sites, a “generalist.”
  - c. Eastern white pine: Fast growth and less susceptible to SPB than shortleaf and loblolly. Limited markets and very site specific. Usually grows best at cooler temperatures at the higher elevations. Will not tolerate excessive heat and droughts. Seedlings are the most expensive of the pines.