



Facts About Low-Density Plantings of Loblolly Pine

Advantages of Planting Fewer Trees Per Acre

Forestry Topics FT0003

April 2005

"Low Density"

"Low Density" refers to plantings which are less than 350 trees per acre (tpa).

Forest Health

- Low-density stands are healthier, have less competition, are more vigorous and are less susceptible to bark beetles and other pests.
- Lower-density stands retain better wildlife habitat longer.
- Lower-density stands are more aesthetically pleasing.
- Low-density plantings will create larger diameter, stockier trees, which are more ice-damage resistant.
- Lower-density stands allow for the establishment of mixed stands of both hardwood and pine for landowners who desire a mixed stand.
- Low-density stands are less likely to be viewed as monocultures.

Thinnings

- Low-density plantings will give landowners a longer time period to do thinnings before the live crown ratios

decrease. Live crown ratio is the portion of the tree that still has live branches that provide food to the plant. To maintain good growth rates, the tree should have enough light for the top 40 percent of the tree to maintain live branches.

- Low-density planting on a 9 ft. by 14 ft. (346 tpa) or 10 ft. by 14 ft. (311 tpa) spacing eliminates the need to remove rows for roads, which allows a true selective thinning to be done
- Low-density plantings will have less volume available for thinning but can have much more chip-n-saw in the thinning, creating more income.



A 12-year-old loblolly pine stand planted at 300 trees per acre, which is more aesthetically pleasing, provides better wildlife habitat and is more resistant to insects and disease.



A 22-year-old loblolly pine stand planted at 300 trees per acre. Consider the future tree diameter when determining the desired planting density.

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Wood Quality and Return on Investment

- Depending on assumptions about the future, lower-density stands give a higher rate of return on investment to the landowner than 500 trees per acre, by producing chip-n-saw in the thinning and sawtimber in 30 to 35 years.
- Lowering densities to between 200 and 350 trees per acre causes no significant change in wood quality.
- Low-density plantings will create sawtimber-size trees sooner.
- The use of 100% genetically improved seedlings ensures that almost all stems will be good quality crop trees and will minimize excessive limbiness and knot-size compared to unimproved loblolly.
- Tree planting cost will be no more than for regular planting and could be accomplished at a reduced site prep and planting cost through spot planting.
- Low-density plantings could be established through spot hand release, which would allow pines to grow without total herbicide treatment.



A 22-year-old loblolly pine stand planted at a higher density (higher trees per acre). Higher-density plantings create a less vigorous, dense forest with lower-diameter trees which are less valuable.

Caution: Planting fewer trees per acre increases the importance of ensuring that seedlings are planted correctly.

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