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Loblolly Pine: Importance, Characteristics, Management, and Yields

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Importance

- Loblolly pine (*Pinus taeda*) is considered, commercially, the most important of the southern pines and is the foundation of the lumber and pulp industry in the southeast.
- occupies approximately 29 million acres and makes up over one-half of the standing pine volume
- native range is from South New Jersey along the Atlantic coast and Piedmont southward through Central Florida, westward to East Texas and northward to Southern Kentucky
- In Georgia, loblolly pine is found statewide except for the far northeast corner of the State.

Characteristics and Distinguishing Features

- Loblolly pine overlaps slash and longleaf pine species in its range and growth characteristics. Photo 1 illustrates needle and cone characteristics that are particular to loblolly pine.

Table 1. Distinguishing features of three commercially important southern pines in Georgia

Species	Needle length	Needle bundle #	Cone stem	Cone length	Terminal bud diameter	Terminal bud color
Loblolly	5 - 9 "	3 occasionally 2	no	3 - 6"	1/8 - 1/4"	brown
Slash	7 - 11"	2 occasionally 3	yes	4 - 8"	1/4 - 3/8"	reddish, brown
Longleaf	10 - 14"	3 occasionally 2	no	8 - 12"	3/8 - 1/2"	cinnamon w/ white hairs

Management

Due to the rapid early growth rate of loblolly pine compared to other southern pines, relative shade intolerance, and availability of genetically improved seedlings, this southern pine lends itself to moderate to intensive management and artificial regeneration (planting a site with a desired genetics and spacing versus relying on seed from a selection of trees from the current stand). To maximize early loblolly survival and growth the following management activities need to be performed: (1) Pre-plant site preparation is required to successfully establish loblolly pine; typically a chemical or mechanical treatment or a chemical/mechanical combination prior to planting the site. The site prep goals are to minimize hardwood (cutover site) or herbaceous (old-field site) vegetation, improve soil aeration/tilth where needed, and maximize site quality so the seedlings can get optimal amounts of water, sunlight, and nutrients and have rapid root development. (2) Order and purchase the best genetically improved seedlings for your land / soils; typically order 500 to 750 seedlings per acre. (3) In most cases have site

prep done at least 2 to 6 months prior to planting to allow for soil settling if mechanical treatment is performed or if an herbicide is used with soil activity. (4) Plant containerized seedlings from mid-September to mid-February and bareroot seedlings from mid-December to mid-February when the site has good soil moisture. (5) Herbicides and/or fertilizers may be used post-plant depending on the need, expected loblolly pine response, cost, expected returns and time of expected returns. (6) Thinning(s) are performed when pine basal area gets to 120 ft²/acre or when live crown ratios approach 33% (60 feet tall trees with 20 feet of live crown = time to thin). (7) Prescribe fire can be used in loblolly pine stands starting when the trees are typically 15 to 20 feet tall and at least 3" groundline diameter. (8) Where financial performance in a top priority, a final harvest typically occurs between ages 22- and 35-years.

Loblolly pine Yields

Depending on the •site/soils, •land use history (old-field versus cut-over sites), •pine genetics, •stocking, and •management loblolly can yield from as little as 2 tons/ac/yr to 12 tons/ac/yr during the first 20- to 25-years. Figures 1 and 2 are examples of loblolly pine yields under a moderate to high level of management and growth rate for a 24-year (Figure 1) and moderate level of management for a 33-year (Figure 2) rotation. Individual site yields will vary.

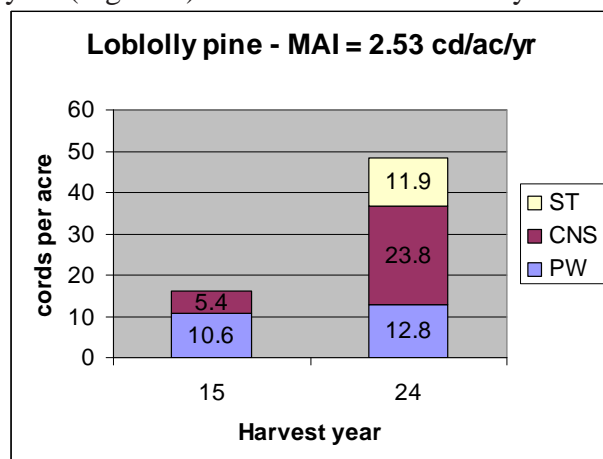


Figure 1. Loblolly pine yields of pulpwood (PW), Chip-n-saw (CNS), and sawtimber (ST) at a 24-year rotation (thin @ age 15-yrs). 1cord=2.7 tons

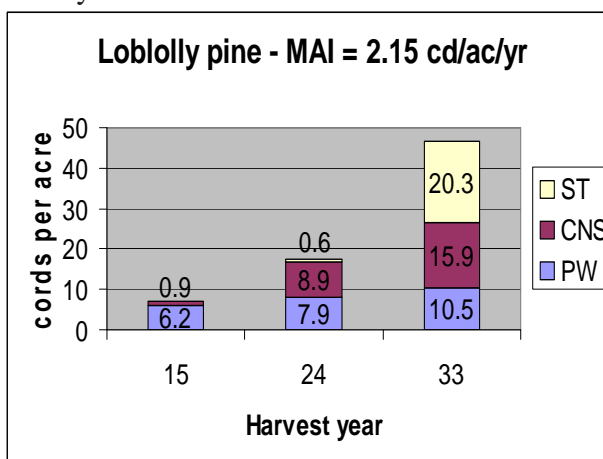


Figure 2. Loblolly pine yields of pulpwood (PW), chip-n-saw (CNS) and sawtimber (ST) under a 33-year rotation (thin @ ages 15- and 24-years). 1cord wood+bark=2.7tons

Table 2. Mean Annual Increment (MAI) yield estimates for loblolly pine in Georgia using moderate to intensive management on cut-over sites (as stemwood+bark green weight)

Ages (years)	Mean annual increment (cords/ac/yr)
4	2.0
7	2.8
8	3.1 to 3.5
9	3.9 to 4.7
12	2.8 to 3.7
12	2.6 to 3.6
15	2.9

1 cord of wood+bark = 2.7 tons



Photo 1. Loblolly pine needle (4-6 inches; typically in fascicles of three, occasionally two) and cone (base is sessile to the stem; no stem and 3-5 inches long) characteristics.

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