Pole POSITION

GROWING LONG, TALL PINE FOR USE AS PILINGS AND ELECTRICAL AND TELEPHONE LINES CAN BE ONE OF THE MOST LUCRATIVE USES OF FORESTLAND.

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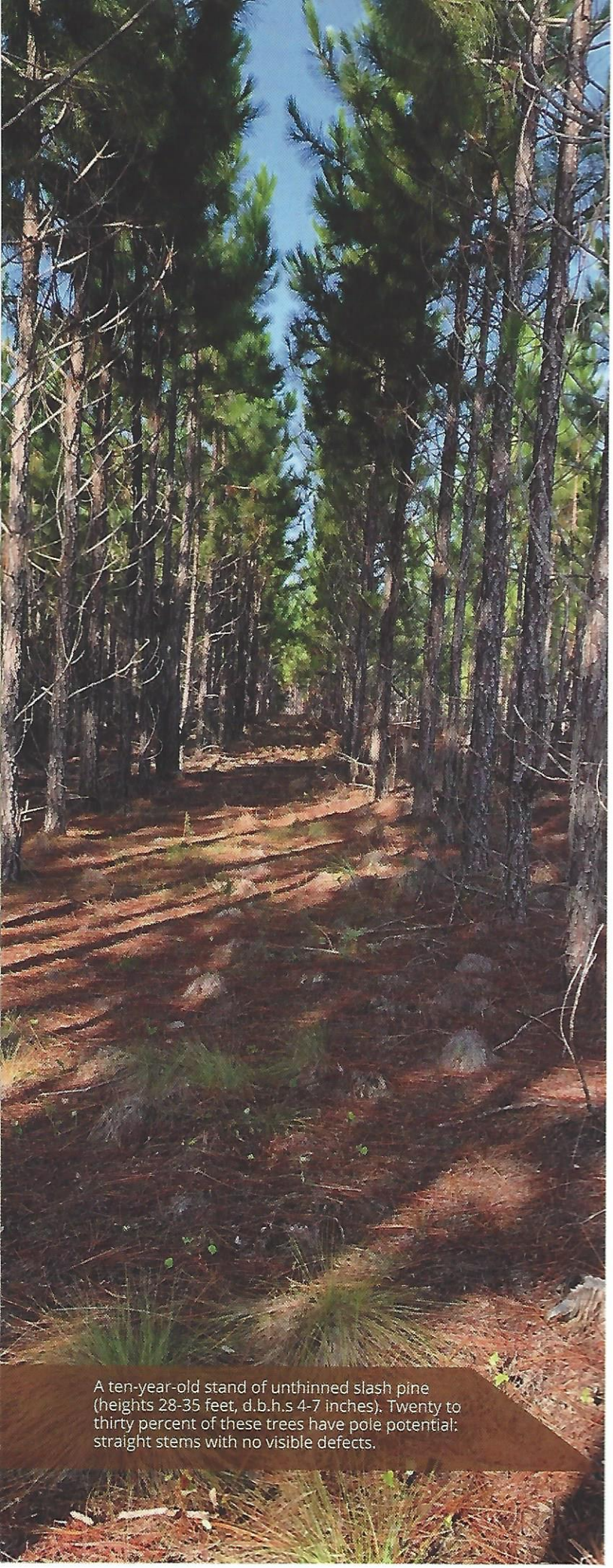
Pine poles can be one of the most lucrative sources of income for private forest landowners. Such poles are used to run telephone, cable, and electrical lines from their sources to customers. Poles are available in a variety of materials ranging from wood, metal, concrete, or composites.

Pine poles in the Southeast come from well-managed longleaf, slash, loblolly, and shortleaf stands. Pine poles will be the best trees in the stands with minimal or no visible defects. Trees that make pine poles have historically been the highest-valued wood product in the Southeast.

Georgia statewide pine pole values in the last 45 years (1976-2020) and the last five years (2016-2020) have been 467 percent and 360 percent, respectively. greater than pulpwood, 202 percent, and 234 percent greater, respectively, than chip and saw; and 147 percent and 175 percent greater than sawtimber.

For forest landowners to maximize the value per acre of a pine stand, each tree should be sold for its highest value. For example, if a landowner has 24 trees per acre in a 30-year-old, well-managed pine stand that qualifies as poles and the average diameter at breast height (4.5 feet above groundline: diameter at breast height) is 14-16 feet and total height is 80-90 feet, that results in 24 tons per acre of the highest valued pine product. Selling those 24 tons at a pole stumpage price of $45 a ton based on 2016-2020 Georgia prices versus a sawtimber price ($26/ton) increases revenue by about $456 per acre. On a 100-acre stand, this amounts to a revenue increase of more than $45,000.

Pine poles come from both naturally regenerated stands and planted stands. Pole producing age varies due to several factors: pole size (smaller pole specifications can be met at an earlier



A ten-year-old stand of unthinned slash pine (heights 28-35 feet, d.b.h.s 4-7 inches). Twenty to thirty percent of these trees have pole potential: straight stems with no visible defects.

age), tree species, genetics, stocking, site quality, and management intensity. Most stands begin producing poles in well-managed stands at 30 years of age but pine poles in Georgia have been produced as early as age 25 years and 22 years for pilings (down to a 9-foot diameter at 4.5 feet above groundline or d.b.h.) with proper and timely thinnings.

POLE SPECIFICATIONS

Pine trees that qualify as poles must meet minimum size (diameter and length) and defect standards. Generally, the larger the pole, the higher the value; therefore pine stands with larger poles will sell for a higher price than stands with smaller poles

A small portion of trees is cut for construction or "barn" poles measuring 10 to 30 feet long (finished length) with a 4" to a 5" top diameter (without bark, add 1" for with bark). Pilings, used for docks and other marine needs range in finished length from 20 to 70 feet.

For a southern pine to make a pole it must have the following minimum visual specifications: fewer than four knots per linear foot and less than six-inch diameter of knots per linear foot as a general guide; no branches in the first 10 feet (due to stress points when buried); and no forking for at least 32 feet or sharp-angled large branches. It also must have less than one-inch sweep for every 10 feet of stem and no stem canker for at least 32 feet (or minimum pole or piling length). Stem taper, knot size, and the number of knots per linear foot can affect pole class and therefore price/value.

SOUTHERN PINE STAND MANAGEMENT FOR POLES

Growing high valued pine products, whether from naturally regenerated or planted stands, requires trees that have the characteristics needed for poles or sawtimber and sound and timely forest management.

In planted stands, growing poles starts with pre-plant site preparation that minimizes woody competition using forest herbicides, planting the right pine species for the site using the best quality seedlings and at the right planting density (500-750 seedlings per acre), and managing the stand for eventual thinnings.

Thinning at the proper time to a target basal area (basal area is the sum of the cross-sectional area of all pines/acre) is the most commonly used forest management tool for growing the best trees in a stand to a final harvest. A pine stand is ready to thin when it meets minimum logging and forest management specifications. Loggers typically need at least 25-28 tons/acre of merchantable wood and trees should average at least 50 feet tall for a thinning to be economical.

The rule of thumb for when to thin pine stands from a forest management perspective is when the basal area approaches 110-120 ft2/acre and when live crown ratio is 35-40 percent. Ideally, the live crown ratio should be at least 40 percent (a 50-foot tall pine should have at least 20 feet of live crown).

Planted pine stands usually are thinned at age 12- to 22-years old based on site quality, pine species/genetics, and management intensity. As a pine stand's basal area increases above 120 ft2/acre, bark beetle hazard potential increases. As live crown ratio decreases below 40 percent, the growth

A 30-year-old planted, thinned loblolly pine stand in Candler County, Georgia with poles marked in blue paint. The three diagonal blue paint marks on the loblolly pine in the foreground indicate that this tree will be cut at the logging deck to a 42-foot pole. This stand's loblolly pines were 80-87 feet tall and 30 percent of the stand produced poles.

response to thinning tends to decrease.

If a pine stand has the potential to have a portion of the stand grow to sawtimber or poles, then the extra step of professionally marking the stand for thinning might help ensure candidate pole trees are retained and not damaged by machinery during thinning. The marker can designate the "leave" or "take" trees so there is no guesswork by the cut-down machine operator.

Planted pine stands are usually row plus select thinned. For pine pole production, in a first thinning, it is generally best to do a fourth or fifth row thin versus a third row thin to leave more quality trees remaining in the stand.

Once the row thinning is completed, then the cut-down machine returns and removes all marked trees (if the stand is marked for "take" trees) or the cut-down machine operator selects trees to cut. At this point, the primary objective should be the removal of trees that have a stem defect (fork, excessive sweep, ramicorn branch, excessive branching, or stem canker) or have inferior growth characteristics that will always keep them in the lowest price category: pulpwood.

Pine stand target residual basal area/acre tends to be 65 to 80 ft2/acre after each thinning. In many cases, pine stands with a reasonable portion of sawtimber or pole potential trees, will be thinned a second time six to ten years after the first thinning.

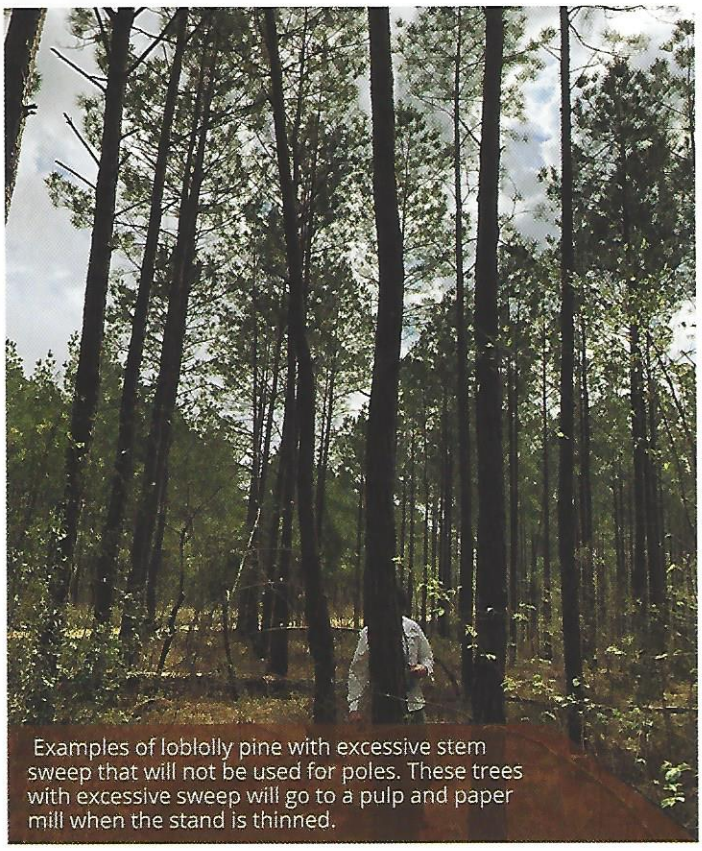
The second thinning will remove trees with small diameters and crowns and any trees with defects, leaving the best form, largest diameter, and largest crown trees that have sawtimber or pole potential. Thinning allows the best trees that have no stem defects and are the most dominant in the stand to grow at an accelerated pace into more valuable solid wood product classes after the thinning.

From a non-industrial private forest landowner's perspective, there are at least three ways to improve timber value through time. These are, in order of increasing importance; (1) real product price appreciation, (2) wood volume growth, and (3) individual tree stems moving to higher value product classes through growth and management: pulpwood to chip-n-saw to sawtimber to poles.

If we look at trees in a pine stand as inventory, we are inclined to liquidate the portion that will not grow significantly in value as soon as possible. The portion of inventory that does not grow appreciably in value are trees with defects. Proper and timely thinnings achieve this goal.

Trees targeted for removal (liquidation) during the first thinning generally have defects. Other trees that should be included in a first thinning with the defective trees are those that

Cut to final length and treated pine poles in the plant wood yard.



Examples of loblolly pine with excessive stem sweep that will not be used for poles. These trees with excessive sweep will go to a pulp and paper mill when the stand is thinned.

occupy the lower portions of the overall canopy (suppressed or intermediate trees) that do not respond positively to a thinning as the larger dominant and co-dominant trees would.

High-quality, defect-free crop trees that have larger stem diameters and live crowns respond to a thinning as more of the site's resources (water and nutrients) and sunlight become available. These crop trees grow at a faster rate after a thinning due to less competition for the site's resources. Pine poles are generally not produced until after a second thinning.

Trees are sold by product classes. Wood product classes are based on two major factors: defects and diameter classes (to a given length which is highly correlated to diameter). Defects generally determine whether a tree is pulpwood, the lowest valued wood.

If a tree has no visible defects, then the diameter dictates what wood product the tree falls into. From an economic standpoint, a forest landowner wants to grow as much of the highest valued wood as possible.

Pine poles historically have been the highest valued pine wood product in the Southeast. Pine poles command 3.6 times the value of pulpwood. Second to poles in value is sawtimber (ST) generally with a d.b.h. of 12.6 inches or greater with no defects and a relatively straight stem (some sawmills may take smaller diameter trees).

Pine sawtimber trees are used to cut dimension lumber and are worth more than twice the value of pine pulpwood. Pine chip-n-saw (CNS) trees have minimal or no visual defects, are relatively straight, and generally have dbh of 8.6 through 12.5 inches. Trees that qualify as CNS trees are used to make smaller dimension lumber (chip-n-saw mills will vary dimension lumber size and type specifications) and are worth more than 1.5 times the value of pine pulpwood.

If you are managing your pine stand to grow high valued products and you think you may have some trees that qualify as poles, then contact a professional forester, a pole buyer, your state forester, or county agent for assistance. The economic ramifications of not selling trees that qualify as poles can be significant.

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