

Thinning CRP Pines

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Introduction

The more than 645,000 acres of Georgia CRP pine stands represent a wealth of fiber and timber production opportunities. As the trees in these stands begin to reach pulpwood size, landowners should think about using one of the basic pine management tools, thinning.

Thinnings can be thought of as intermediate harvests where some trees are cut from a timber stand several years before the final harvest.

A thinning operation is used to promote increased growth rate, size and value of the remaining trees. Thinnings are used to salvage beetle killed trees and decrease the susceptibility of pine stands to insect and disease attacks. For example, stands infected with fusiform rust can be thinned to salvage valuable wood from trees that otherwise would die before the final harvest.

Thinning Decision

The decision whether or not to thin a particular stand depends on the stand conditions and landowner objectives. When pulpwood production is the desired goal, thinning is rarely desirable. Over time, unthinned stands produce more total fiber per acre than stands that have been thinned, even though unthinned stands produce less vigorous, smaller diameter trees.

While this is acceptable for pulpwood production, landowners may be able to get a greater total financial return over the life span or rotation of the stand by making several thinnings to produce more valuable, larger trees suitable for sawtimber and other solid wood products.

Intermediate commercial thinnings provide landowners with periodic income as a stand develops. Depending on the growth of the stand, commercial thinning can occur as early as age 12. Most pine stands gain the greatest benefit from thinnings started before age 20. Subsequent thinnings follow at five to eight year intervals. Final harvests generally occur between ages 25 to 35 years.

Determining when to thin is an important decision. One way to estimate when to thin is by keeping track of the 'live crown ratio' of trees in the stand. This is defined as the length of the live crown (the part of the tree with live branches) divided by the total height of the tree. Before the average live crown ratio falls below 35 percent, the stand should be thinned. For example, if the average tree height is 40 feet and the average length of the live crown is 14 feet, then the live crown ratio is 35 percent and the stand should be thinned soon.

Another way of determining if a stand needs thinning is to measure the stand density by

^{1, 2} 1998. Thinning CRP Pines. Georgia Cooperative Extension Service, College of Agricultural and Environmental Sciences, The University of Georgia, Athens, GA 30602 U. S. A.

1998. The Entomology and Forest Resources Digital Information Work Group, College of Agricultural and Environmental Sciences and Warnell School of Forest Resources, The University of Georgia, Tifton, Georgia 31793 U. S. A. BUGWOOD 98

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estimating the basal area (BA) per acre. BA for each tree is simply the area in square feet taken up by an individual tree trunk at diameter at breast height (DBH). The sum of these individual values for all the trees growing in one acre equals the BA per acre.

Thin stands when the BA is equal to or greater than 120 square feet per acre. After thinning for most pine stands, a residual BA of 70 to 90 square feet per acre represents nearly ideal stocking.

Young stands must attain minimum merchantable diameters and height to produce enough volume before the first commercial thinning is feasible. Generally, a thinning operation must produce 5 cords of merchantable wood per acre. To reach the point to consider a commercial thinning, trees should average 5 inches DBH, and be at least 4 inches diameter outside bark (DOB) at a height of 20 feet.

Thinning Methods

Several thinning methods are popular in the South. These vary in the level of preparation required, the equipment used to remove the trees, and the type of stands that are to be thinned.

Row Thinning

As the name suggests, this method involves removing alternate rows of trees from the stand and normally is conducted early in the rotation. Depending on spacing, all trees in every third, fifth or seventh row are harvested. Specific trees do not have to be marked for removal so the thinning operation proceeds rapidly once the pattern of row removal is established. Row thinnings usually leave very little damage to the residual stand, but definable rows must exist.

This method is fast and costs little to conduct, but while density is reduced and growing space

is increased, row thins do not improve the overall quality of the trees in the stand, because poorly formed, diseased or other less desirable stems remain in the unthinned rows. In fact, some of the more vigorous fast growing trees are removed in this nonselective method.

In most thinning operations, harvesting is done by feller-bunchers that cut and pile trees along the cut row. Grapple skidders then drag piled trees to concentration areas or landings for additional processing and loading onto haul trucks and trailers. If limbs and tops are removed, or if the trees are cut into short lengths, expect to see chainsaws, forwarders, limbing gates, delimbers, processors or slashers in use.

In some areas large whole-tree chippers are used in combination with feller-bunchers and grapple skidders. Mechanized systems can produce 200 to 1,000 cords per week and favor stands that take two weeks or more to thin. Labor intensive harvesting systems of chainsaws and small pulpwood trucks still can be found and are ideal for thinning small acreages.

Selection Thinning

Selection thinning, also called leave-tree or low thinning, is probably the most common thinning method in the South. This type of thinning removes trees that have been overtopped by faster growing trees, as well as poorly formed trees that could never make it to sawtimber size or quality.

For a first thinning, selection thinning is often difficult because of limited machinery access among small closely spaced trees. Damage to residual trees can be expected in this situation. Selection thinning is more appropriate for second and third thinnings or unthinned stands where trees are not so close together.

Normally, the stand should be marked before thinning. Mark the trees to be removed with paint at two points, one at chest height for easy visibility and the other at the groundline as a check to insure that only marked trees are harvested. When marking trees for removal, take out the poorly formed, crooked, diseased and overtopped trees that would not produce sawtimber. An alternative is to let the logger select trees for removal. This is perfectly acceptable and can be cheaper provided you include in a written contract guidelines to specify and control tree removal. Periodic inspections insure that the thinning is conducted as intended.

The best harvesting system for selection thinning should be compact and maneuverable. Labor intensive pulpwood operations, while acceptable especially for first thinnings, are becoming scarce in Georgia. Typically, expect to see mechanized operations featuring 3-wheel feller-bunchers working with forwarders, skidders and even chippers.

Combination Thinning

Combination thinning combines the row and selection thinning methods. Rows are removed to allow access to the interior of the stand where a selection thinning is conducted to remove the inferior quality trees.

Removing every fifth or seventh row allows the equipment to enter the stand. The feller-buncher enters the stand from the cleared row, fells and accumulates the marked trees, and carries the bunch back to the row for skidding and processing. There is usually less damage with a combination thinning than with a selection thinning. The access corridors also provide openings for later thinning operations.

Strip Thinning

Strip or corridor thinning is used in place of

row thinning methods when the row spacing is hard to follow. Many plantations on sloping sites have this problem and cannot be row thinned. Strip thinning removes a swath of trees in a corridor running along the contour. The corridor can be about 30 feet wide, although this width can be varied depending on you needs. Corridor thinning can also be combined with selection thinning methods to gain the advantages of a combination thinning.

Timing the Thinning

Timing is an important consideration when thinning because of possible insect and disease damage that might occur if the stand is thinned at the wrong time of year. You can reduce the spread of diseases (like Annosus root rot) and insects (particularly bark beetles) into a stand of pines by timing the thinning harvest properly.

Annosus root rot is more likely to infect and spread through a thinned stand if the thinning is done in the winter months. To avoid infecting a stand, schedule the thinning in the summer months between June and August (April to August in South Georgia).

Studies indicate that thinnings between October and January have the greatest potential for causing infection. If you must thin during these months, treating freshly cut stumps with borax immediately after felling can reduce future infection. In infected stands, thin frequently to salvage the infected timber before loss to windthrow and mortality occurs.

The presence of the southern pine beetle (SPB) also affects the timing of thinning. In periods of low beetle infestation, thinning can be scheduled for any time of the year. Where beetle outbreaks have been moderate, observe caution. Do not thin between the months of March and October during periods of moderate

infestation. Winter thinning minimizes the risk of beetle infestation.pines by timing the thinning harvest properly.

When a high number of beetle attacks have been observed, do not thin your timber. Harvesting damage to residual trees after thinning often attracts the beetles and can lead to the destruction of the stand.

Studies show that thinning reduces the risk that a stand will be infested with beetles. However, you must be sure that the thinning operation is timed properly and produces little residual tree damage.