



## DEFINITION

The manipulation of species composition, stand structure and stocking by cutting/harvesting selected trees.

## WHAT IS THINNING?

Trees compete for light, moisture, and nutrients. If the trees become too crowded, growth slows, they become susceptible to insects, diseases and wildfires, and they may eventually die. Therefore, commercial thinnings or intermediate harvests are made within immature stands to stimulate the growth of the remaining trees and improve the health, yield, and profitability of the stand.

## WHY THIN?

A particular site can only support so many trees per acre of a given diameter. Foresters recommend planting more trees than can mature on an acre with the expectation that periodic thinning will be conducted when the trees begin to compete for nutrients, sunlight, water, and other resources. Thinning redistributes the growth potential of the stand to the trees of highest quality and favors their rapid growth. Pines in overly-dense stands (those in which the basal area exceeds about 120 square feet per acre) grow more slowly and become increasingly susceptible to the southern pine beetle and other bark beetles.

Basal area is a measure of stand density and represents the cross-sectional area of all trees at breast height (4.5 feet above ground level) on an acre of land. Average basal area of a stand can be determined using a 10-factor prism, or with 1/20-acre (circular plot with 26.3-foot radius) sample plots distributed randomly throughout the

plantation. Thinning removes trees most likely to die from competition, insects, or diseases and reduces the potential for losses from wildfires. From an economics standpoint, thinning also makes good sense. By promoting vigorous growth, thinning reduces the time required to grow trees from low value pulpwood to higher value poles or chip-n-saw material, and ultimately to valuable sawlogs. Commercial thinning provides the landowner with an intermediate return on his/her investment as trees most likely to die before maturing are harvested and sold.

## PURPOSES:

- Increase the quantity and quality of forest products by manipulating stand density and structure.
- Harvest forest products.
- Initiate forest stand regeneration.
- Reduce wildfire hazard.
- Improve forest health reducing the potential of damage from pests and moisture stress.
- Restore natural plant communities.
- Achieve or maintain a desired native understory plant community for special forest products, grazing, and browsing.
- Improve aesthetic and recreation, values.
- Improve wildlife habitat.
- Alter water yield.
- Increase carbon storage in selected trees.
- Develop renewable energy system

**THINNING METHODS:**

**Row Thinning:** Row thinning is used in pine plantations where trees are planted in rows. Entire rows are removed at designated intervals. Trees may also be removed on a selective basis in the remaining rows. Intervals may be every third, fourth, fifth, or sixth row.

**3<sup>rd</sup> Row Thinning:** Removing every third row in thinning operations releases every leave tree on one side and causes the least amount of damage to the residual trees. Accordingly, it allows easy access to the leave rows and is the least costly thinning method. This approach directly reduces basal area by 33 percent and a third of the potential crop trees are eliminated in the downed rows.

**4<sup>th</sup> Row Thinning:** Removing every 4<sup>th</sup> row directly removes 25 percent of the basal area and a quarter of the potential crop trees, allowing the operator to select and remove a greater number of undesirable trees from the leave rows.

**5<sup>th</sup> Row Thinning:** Many foresters recommend this method because only 20 percent of the potential crop trees are eliminated with removal of every 5<sup>th</sup> row

**6<sup>th</sup> Row Thinning:** this method removes about 16.5 percent of the potential crop trees are eliminated. Row thinning is a quick way to reduce the number of stems per acre. Row thinning minimizes equipment damage to residual trees. Unfortunately, it also involves the removal of quality trees as well as trees that need to be removed in a thinning. Row thinning is ideal for a first thinning where you have a large number of stems per acre and machinery access and maneuverability is limited. Feller bunchers with short wheel bases are often used for felling and bunching trees in row thinning with a prehauler or skidder used to transport trees from the forest to the haul truck. Because row thinning often requires expensive equipment, tracts considered for row thinning must be fairly large.

**Strip Thinning:** Strip thinning or corridor thinning is used in natural stands or in plantations where it is not possible to follow the rows. In strip thinning, all of the trees in a strip of a certain width are removed. Strips should follow the contour and be wide enough to allow the operation of the necessary machinery. The cut strip should be at least 15 feet wide. Strips of uncut timber between corridors should be about 30 to 40 feet. The width can be varied according to landowner objectives

**Selection Thinning:** Selection thinning, also called leave-tree or low thinning is a common method in the South. This type of thinning removes trees that have been overtopped by faster growing trees and trees that are poorly formed or diseased. Selection thinning is usually used in natural stands and plantations that have previously been thinned. It is seldom used in un-thinned plantations because of the potential damage to residual trees. Cut or leave trees should be marked before thinning. Another method is to let the timber harvester select the trees to be removed. This method saves the cost of marking but should be closely monitored to make sure that the best trees are retained and that the proper numbers of trees are left for future growth. It is advisable to have a professional forester to oversee this type of thinning.

**CONDITIONS WHERE PRACTICE APPLIES**

All forest land where improvement of natural resources associated with forest land is needed.

**PLANS AND SPECIFICATIONS**

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, or other acceptable documentation.

**OPERATION AND MAINTENANCE**

Periodic inspections during and after treatment activities are necessary to ensure that purposes are achieved and resource damage is minimized, e.g., assessment of insects, disease and other pests, storm damage, and damage by trespass. The results of inspections shall determine the need for additional treatment under this practice.

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2/14

**Alabama EQIP/WHIP Practice Certification Job Sheet:**  
**666: Forest Stand Improvement – Commercial Thinning**

Prepared for: \_\_\_\_\_

Farm Number: \_\_\_\_\_ Tract Number: \_\_\_\_\_

Prepared by: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Practice Planning Checklist**

- Forest Basal Area prior to thinning: \_\_\_\_\_ square feet per acre
- **yes**  **no** Thin pine stands Moderate thinning - Commercial Emphasis (80 BA or less).
- **yes**  **no** Thin pine stands Heavy thinning - Wildlife Emphasis (50 BA or less)
- Other Basal Area Specification: \_\_\_\_\_

**Practice Certification Checklist**

- Final Basal Area after thinning operation: \_\_\_\_\_ square feet per acre.
- What type thinning method was utilized to accomplish this thinning operation?  
\_\_\_\_\_
- **Yes**  **No** The conservation practice has been installed according to the NRCS Forest Stand Improvement (666) Practice Standard resulting in habitat improvement as defined in the Conservation Plan.

Certification by: \_\_\_\_\_

Date: \_\_\_\_\_