



Reducing the Threat of Southern Pine Beetle
Outbreaks:

**2021 Guide to Southern Pine Beetle Cost Share
for pine thinning operations in Mississippi**

Project Collaborators:

Mississippi Forestry Commission

US Forest Service-Forest Health Protection Southern Region

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2021 Guide to Southern Pine Beetle Cost Share for pine thinning operations in Mississippi



This guide explains who qualifies, how to apply, and the requirements for the 2021 SPB Cost Share Program for pine thinning operations in MS.

Introduction

Insect problems intensify as pine stands become crowded and tree condition or vigor declines. Southern pine beetle (SPB) infestations in particular have long been associated with high stand density. Treatments such as thinning to reduce pine density offer the most promising and long-lasting means of preventing these conditions (Nebeker, et al. 2015. Southern Pine Density Management for a Healthier Forest. MSU-Extension Publication 2893).

Thinning pine stands to lower densities increases the amount of rainfall reaching the forest soil and reduces water use by remaining trees. This combination greatly reduces water stress and improves pine tree condition or vigor. Pines under less water stress produce higher levels of resin acids in their sap which also repel pine beetles. These are a couple of reasons why thinned pine stands are less attractive to beetles.

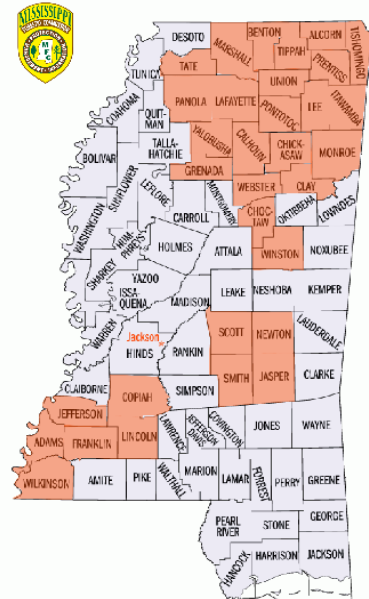
To help landowners reduce the risk of a SPB outbreak on their pine forests, the US Forest Service - Forest Health Protection Southern Region, has provided funds to the Mississippi Forestry Commission to cost share pine thinning operations in Mississippi. Mississippi State University Extension Service provides on-site technical support.

For 2021 the SPB Prevention Program will focus on our greatest need, reducing the outbreak threat of southern pine beetles on private forest lands in Northeastern Mississippi (NE MS) and other areas with the potential of an outbreak. Closure of a large pulp mill in Alabama cut demand for pinepulpwood in this region in half and resulted in a downsized available logging force.

Landowners face lower stumpage rates for pulpwood and fewer loggers available for thinning. The combination of bad pine pulpwood markets with high SPB populations in and around the Tombigbee National Forest and Bienville National Forest make these counties a high priority area. The 2021 SPB funds would encourage landowners to thin their pine stands during poor market conditions.

Priority Counties for 2021

In 2021, cost share funds will be made available for pine forestland in 33 Mississippi counties: Adams, Alcorn, Amite, Benton, Calhoun, Chickasaw, Choctaw, Clay, Copiah, Franklin, Grenada, Itawamba, Jasper, Jefferson, Lafayette, Lee, Lincoln, Marshall, Monroe, Newton, Panola, Pontotoc, Prentiss, Scott, Smith, Tate, Tippah, Tishomingo, Union, Webster, Wilkinson, Winston, and Yalobusha (orange colored counties on map).



MS Cost Share Program for Pine Thinning: Landowners

Landowner Funding Limitations

The cost share rate for landowners is \$100 per acre for pre-commercial and first commercial thinning. Total cost shares will not exceed \$10,000 (100 acres) per individual landowner (sole proprietor). There is also a limit of \$15,000 (150 acres) for a partnership, LLC, FLP, estate or trust with two or more members.

Landowner Conditions to Qualify

Non-Industrial Ownership. To qualify for any federal cost shares, a landowner must be non-industrial and not own more than 5,000 acres. The non-industrial ownership category can include sole proprietors, partnerships, family limited partnerships, limited liability corporations, trusts and estates. Usually excluded are C-corporations and REITs. The MS Forestry Commission has the last word on whether properties qualify as non-industrial. The name(s) on the W-9 form and application should match the deed or other document of title evidencing ownership of the land. Please provide the deed of the property with the application for verification.

Joint Ownership. Where more than one person owns the land jointly, such as a group, association or corporation, the joint owners are considered as one eligible landowner. All owners in a joint ownership must sign the cost share application. Individual owners who share in a joint ownership, but also own separate property in their own name, may participate as individuals, and the joint ownership does not affect their eligibility. Application with joint ownerships will include only one tax identification number and only one payment to be issued. The principal applicant will be responsible for dividing the payment appropriately among the owners.

The pine plantation is not enrolled in the Conservation Reserve Program (CRP). Federal law prevents landowners from receiving federal cost-share funds from more than one source on the same acreage. The CRP program already offers thinning cost share to

landowners with enrolled pine and hardwood plantations. Consequently, if you own a pine plantation enrolled in the CRP program, contact your local Farm Service Agency representative for application instructions for their thinning cost share.

20 Acres (or more) of Contiguous Pine Stand. This is the minimum commercially viable acreage for thinning in north Mississippi. However, multiple non-adjacent parcels of land may be included on the same application up to a maximum of 100 acres. Landowners are encouraged to pool their pine acreage with a neighbor to make a much more commercially viable thinning.

Additional Pine Plantation Requirements:

For Pre-commercial Thinning

1. 4-12 years of age
2. Have a stand density greater than 700 stems per acre
3. Comprised of at least 70% loblolly, shortleaf, or slash pine
4. Rated as moderate, high or very high for SPB outbreak (see SPB Hazard Rating)

For First Commercial Thinning

1. 12 years of age or older (see Caution page 6)
2. Comprised of at least 70% loblolly, shortleaf, or slash pine
3. Rated as high or very high for SPB outbreak (see SPB Hazard Rating)

SPB Outbreak Hazard Rating

The Cost Share Administrator will collect data prior to thinning to determine if a pine stand has a moderate to very high hazard rating for SPB outbreak. SPB Hazard ratings are useful in ranking potentially susceptible pine stands and prioritizing thinning during periods of high beetle population. The SPB Outbreak Hazard Rating system below was developed by Mississippi State University from existing regional models. It is a very simple method that uses pine basal area (ft² per acre) and stem radial growth over the last 10 years (inches) as the estimators for SPB Outbreak Hazard. An alternative hazard rating method will be used to rate stands needing pre-commercial thinning.

For First Commercial Thinning (age 12 and older) the hazard score is calculated from this equation:

$$SPB\ Outbreak\ Hazard\ Score = 2.004 (Pine\ BA) - 46.4058 (10\text{-}yr\ Radial\ Growth) + 6.92$$

A SPB outbreak hazard score of 109-184 is rated Moderate, 185-232 is rated High, and 233 and higher is rated Very High in hazard for SPB outbreaks. Hazard scores of 108 or lower are rated low to very low in southern pine beetle hazard.

To qualify for cost share, a pine stand must have a hazard rating of Moderate or higher. Therefore, an SPB Hazard Score 109 or greater is required to qualify for First Commercial Thinning cost share.

An alternate equation generally used by the SPB prevention program can also be used and is listed below:

$$\text{Score} = 1.8342 (\text{Pine BA}) + 0.4085 (\text{Total BA}) + 0.705 (\text{Age}) + 0.88 (\text{Site Index}) - 206.315$$

Where:	220 or above	Very High
	168 to 219	High
	62 to 167	Medium
	11 to 61	Low
	10 to 0	Very Low

Example: If total basal area is 130 sq. ft./acre, pine basal area is 120 sq. ft./acre, stand age is 27 years, and site index is 109.

$$\text{Score} = (1.8342 \times 120) + (0.4085 \times 130) + (0.705 \times 27) + (0.88 \times 109) - 206.315 = 181.85$$

The score of 181.85 is between 168 to 219 means the relative hazard rating is "High."

Landowner Agreements to Receive Cost Share

- **Thinning completed within 9 months.** Landowners only have 9 months from the date of the site visit/contract signature by the Cost Share Administrator to thin their pine stand. If the stand is not thinned by the deadline, the landowner will be dropped from the program and no cost share will be paid.
- **Obtain a written thinning contract with a professional logger.** To make the thinning deadline above, landowner should sign a written contract with a professional logger within 2 months from the date of the site visit. The Cost Share Administrator has the right to drop a landowner that does not have a written contract within 3 months. Confirm the logger is SFI Certified at logged.msstate.edu and provide the Cost Share Administrator with contact information on the professional logger.

- **Reduces residual pine basal area (BA) to 80 ft² or below.** First commercial thinning operations must reduce the residual pine stand to 80 ft² of basal area per acre or less. An alternate for greatly overstocked stands is at least a 50% reduction in BA.

The table on the right shows the number of trees per acre that can be left after a thinning given the average tree size (stem diameter) remaining after thinning. Keeping residual trees per acre at or below these numbers will ensure a residual basal area of 80 ft² or less.

Average Tree Diameter inches	Leave Trees per Acre to achieve target 80 sq ft BA
5	587
6	407
7	299
8	229
9	181
10	147
11	121
12	102
13	87
14	75

- **Harvests a minimum of 10 tons per acre in the first commercial thinning operation.** Keep harvesting scale tickets to prove tonnage.
- **Follows all Mississippi’s Best Management Practices on your forestland.**
- **Allows on-site inspections.** Each approved pine stand is subject to inspection by state or federal crews before, during and after the thinning. The Cost Share Administrator will need to verify the thinning was completed and BMPs were followed.
- **Notifies the Cost Share Administrator** when thinning starts and when completed.
- **Will manage pines an additional 5 years post-thinning.** Landowner agrees to manage this thinned pine plantation an additional 5 years after thinning. If the stand is clear-cut before 5 years have passed, the landowner must contact the CostShare Administrator.

Landowner Procedures After Thinning

Following thinning operations, provide the following to the Cost Share Administrator:

- **Pre-commercial Thinning** – Document actual costs by keeping receipts.
- **First Commercial Thinning** – Make sure the professional logger either provides all scale tickets, or the first and last scale tickets from the sale and a summary of total tonnage of timber by product harvested. Scale tickets need to be provided to the

Cost Share Administrator for federal reporting purposes. The Cost Share Administrator will also need to inspect the property after thinning to verify it has followed cost share guidelines.

The Mississippi Forestry Commission (MFC) will review the documentation and verify completion of thinning operations. Upon approval, MFC will issue a cost share payment to the landowner.

Caution to Landowners!

Do not let this offer of cost share determine the timing of your pine thinning operations. Thinning too early can ruin the stem quality of young pine trees. A few pine characteristics that should be met before even considering a first commercial thinning include a stem diameter of at least 6 inches, a total height of 40 feet or more, and branches self-pruned to 18 feet. Please consult with a forester before making a pine thinning decision. The MS Board of Registered Foresters keeps a list of foresters by county at www.cfr.msstate.edu/borf.

How a Landowner Applies for Cost Share

1. Get on the waiting list. Contact the Cost Share Administrator (see back page).

Interested landowners can verbally sign up for the program beginning September 15, 2016. Call during working hours to get on the 2017 waiting list for cost share funds. Funds made available will be distributed on a first come, first serve basis to qualified pine stands.

2. Prepare for thinning. Once landowners are on the waiting list they need to contact a local forester and plan their thinning operation. The MS Board of Registration for Foresters keeps a listing of foresters by county at www.cfr.msstate.edu/borf.

3. Stand Assessment/Inspection. The Cost Share Administrator will inspect the stand being enrolled prior to thinning operations to ensure that it meets the qualifications listed above. **Thinning before this inspection disqualifies the property.**

4. Enroll by signing a Cost Share Application and W9 form. The landowner provides proof of ownership and the legal description of the stand at this time. A landowner is officially enrolled and has funds dedicated to their thinning operation once the application forms are signed and approved.

For More Information

If you have questions, contact:

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