

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD  
SOUTH DAKOTA SUPPLEMENTS ITALICIZED**

**FOREST STAND IMPROVEMENT**

(ac.)  
CODE 666

**DEFINITION**

To manipulate species composition and stocking by cutting or killing selected trees and understory vegetation.

**PURPOSES**

To improve or sustain timber production.

To improve understory forage production, aesthetics, wildlife habitat, recreation, hydrologic conditions.

To harvest forest products.

To initiate forest stand regeneration.

*To prevent the occurrence of catastrophic wildfires.*

~~To achieve a combination of purposes.~~

**CONDITIONS WHERE PRACTICE  
APPLIES**

On forest land where competing vegetation hinders development and stocking of preferred tree and understory species or where some or all of the stand will be cut or killed for intended purposes.

**CRITERIA**

**General Criteria Applicable To All Purposes Named Above**

Preferred tree and understory species are identified and retained to achieve the intended purpose.

Spacing, density, and amounts of preferred trees and understory species to be retained will follow established guidelines for the intended purposes. Such guidelines shall contain stocking in terms of basal area, spacing, or trees per acre by species and size class distribution.

Slash, debris and vegetative material left on the site after treatment will not present an unacceptable fire or pest hazard or interfere with the intended purpose.

*All cut trees shall be limbed full length on the trunk and slash scattered so it will lie within 18 inches of the ground.*

*Where piling and burning of slash is necessary due to heavy slash concentrations, slash piles should be placed in natural openings and/or away from leave trees to avoid damaging or scorching them when burning the piles.*

*As a fire protection measure, all slash resulting from thinning must be removed for a distance of 100 feet around all buildings. On sites with an average slope greater than or equal to 40 percent, slash must be removed or chipped within 200 feet of buildings. Large continuous areas of thinning slash shall be broken up by taking advantage of natural firebreaks or by providing fire lanes cleared of thinning slash as deemed necessary.*

The extent, size of treatment area or intensity of the practice shall not exceed acceptable levels for the intended purpose and cumulative ecosystem effects.

Comply with applicable laws and regulations, including the state's Best Management Practices (BMPs).

**Additional Criteria To Improve or Sustain Timber Production**

*Remove suppressed and malformed trees or trees of undesirable species, leaving sufficient well-formed, dominant and co-dominant trees. Priority shall be given to thinning sites having site indices of 55 or greater.*

*Favor the species best adapted to the site (see Woodland Suitability Group Descriptions, Section II of the South Dakota Technical Guide (SDTG)). Generally, ponderosa pine should be the species to favor.*

Conservation practice standards are reviewed periodically and updated if needed. The current version of this standard is posted on our website at [www.sd.nrcs.usda.gov](http://www.sd.nrcs.usda.gov) or may be obtained at your local Natural Resources Conservation Service.

***Suggested Spacing Guide for Ponderosa Pine***

<b><i>DBH</i></b>	<b><i>Trees per Acre</i></b>	<b><i>Spacing (feet) (D+9)</i></b>
2	360	11 x 11
3	304	12 x 12
4	258	13 x 13
5	222	14 x 14
6	194	15 x 15
7	170	16 x 16
8	150	17 x 17

*Thinning should be discouraged from April 15 to July 15 to minimize the build up of the pine engraver beetle (Ips).*

*Trees may be cut with an ax or saw or killed by chemical injection and left standing.*

*Stumps should be no higher than six inches.*

***Additional Criteria to Improve Understory Forage Production, Aesthetics, Wildlife Habitat, Recreation, Hydrologic Conditions.***

*On sites with site indices below 55 or where the development of a grazing resource is a primary consideration, add 1 to 3 feet to the average spacing (D+10 to D+12).*

*Weeding can be used for the removal or reduction of overtopping and strongly competing brush or other undesirable growth from established seedlings of desirable species.*

*Each acre to be released should support a minimum of 150 to 200 live seedlings, evenly distributed over the acre before and after treatment.*

*Release can be obtained by chemical or mechanical means.*

*Cooperators using chemicals shall be cautioned to read the label on the container before using the chemical, handle and apply the chemical according to the label instructions, dispose of unused material or empty containers in a safe manner and follow local, state, or federal laws and regulations concerning the use of agricultural chemicals.*

*Chipping of slash may be necessary in high value recreation areas.*

***Additional Criteria To Harvest Forest Products***

*The method, felling direction, and timing of tree cutting for harvesting shall facilitate efficient and safe tree removal and protect riparian zones, unique areas, and structures.*

*Soil erosion, displacement and compaction, hydrologic impact and damage to remaining vegetation will not exceed acceptable levels.*

**CONSIDERATIONS**

Timing of treatment and retaining dead or dying trees will minimize impacts on nesting wildlife.

Wildlife food and cover can be retained by minimal modifications to composition and spacing regardless of the purpose for treatment. Forested wildlife corridors can minimize fragmentation effects.

**PLANS AND SPECIFICATIONS**

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

**OPERATION AND MAINTENANCE**

Operation and maintenance requirements are not applicable for this practice.