

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

WOODLAND IMPROVED HARVESTING

(Acre)

CODE 654

DEFINITION

Systematically harvesting merchantable trees from a woodland.

PURPOSE

To harvest merchantable trees in accordance with good timber management practices; in order to improve the timber, grazing, watershed, and other values of the forest lands; and to derive an income to the landowner from the sale of forest products.

CONDITIONS WHERE PRACTICE APPLIES

Where the site, size, age, and density of a forest stand make the planned and systemic harvesting of forest trees economically and silviculturally feasible for improving the productivity of the forest and to regenerate the forest.

SPECIFICATIONS

Harvesting in this practice is done in two categories: intermediate cuttings and regeneration cuttings.

1. Intermediate Cuttings - removing merchantable trees to improve the growth of the residual stand or protect the stand from insect and disease outbreaks. Types of intermediate cuttings are discussed below.
 - a. Commercial thinning - Merchantable trees are removed from an immature stand (pole size) to achieve optimum stocking levels. The best formed and most vigorous dominant and codominant trees will be left as crop trees for a future harvest. Crooked, forked, damaged, or wolf trees should be removed first. Then

space out the better crop trees by removing adjacent codominant trees. Crop trees should be free from visual defect, have at least 40 percent live crown and have good form class (diameter:height ratio). Crop trees will be spaced at about $D(\text{average diameter})+8$ to $D+12$, depending on species and site index. Use management guide on woodland information sticks. A professional forester should be consulted in crop tree selection.

- b. Salvage cutting - removing trees damaged by wind, hail, ice, or snow to prevent insect and disease infestation. After severe weather it's recommended that the woodland owner walk through the woodland and look for merchantable trees that were badly damaged. Harvesting these trees quickly will prevent disease and insects from deteriorating the value of the tree and protect the remaining stand.
 - c. Sanitation cutting - removing diseased or insect infested trees within the stand to reduce the potential for spreading into healthy trees. Bark beetles, wood borers, leaf defoliators, parasitic mistletoes, needle blights, and canker diseases proliferate in overmature and stressed immature trees. Identification of the signs or symptoms of these attacks is necessary and prompt removal is important to protect valuable crop trees. Contact your professional forester for on-site insect and disease identification.
2. Regeneration Cuttings - A silviculturally sound systematic harvest of merchantable trees to start a new forest of desirable seedlings. Planning considerations on this harvesting category should consider the

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service.

WOODLAND IMPROVED HARVESTING (654)-2 Statewide

objectives of the landowner in accordance with the following:

- a. Inventory of stand including tree species, age, size, density, natural regeneration in understory, and condition (crown vigor of dominant and codominant trees).
- b. Competing understory vegetation and undesirable tree species in stand.
- c. Site factors such as soil, slope, streams or other wetlands. These factors affect equipment operability, erosion hazard, and wildlife.
- d. Wildlife survey of den trees, snags, and nut-producing trees.
- e. There are several regeneration cutting methods for pine and hardwood stands. Natural regeneration will be used whenever possible and practical.

(1) Selection, seed tree, shelterwood, and group selection are harvesting methods used for the ponderosa pine type,

(a) Selection - Individual mature trees are selected throughout the stand for cutting in relation to the product desired. Care should be taken not to "hygrade" the stand (cutting all of the best dominant and codominant trees leaving the suppressed or inferior trees). The selection system produces an uneven aged stand with many size/age classes. There should be sufficient good quality immature trees left for future harvests. Thinning (precomm. or commercial) may be done after this method.

(b) Seed Tree - Three to four good quality mature seed trees per acre are left for seeding in the future stand. This produces an even aged stand. Soil should be lightly disturbed to expose mineral soil (duff layer disturbed) for better seed germination. This system would be used on the

better pine sites with deep soils (bottoms, north slopes).

(c) Shelterwood - Mature stand is harvested in two to three stages to seed in new stand and protect seedlings from hot, dry conditions. This method is used on droughty soils and on south aspects. Overstory seed trees should be removed when understory pine seedlings are established to prevent suppression during sapling stage.

(d) Group Selection - Similar to the selection method except groups of mature trees are harvested creating small patch cuts. Size of patch cut is usually less than one acre. Natural regeneration from the surrounding trees is expected. This method would produce an uneven aged stand.

(2) The methods used for hardwoods are selection, group selection, and clearcutting. Clearcutting would be used in situations where the desired tree species are not in adequate supply within the stand for natural regeneration. All the trees in a designated part of the woodland are removed and the desired tree species are planted (e.g., black walnut, bur oak, red oak). Clearcutting is also appropriate for other hardwood species and situations, e.g. cottonwood or where coppicing can be relied upon to regenerate the stand. The species planted must be able to produce the product desired in the sites that are clear-cut. Selection and group selection have been described above.

The natural beauty of the site will be considered during logging. If needed, natural screens may be left to cover unsightly areas. For example: Slash will be lopped and scattered, piled and burned or broadcast burned to reduce fire and

WOODLAND IMPROVED HARVESTING (654)-3
Statewide

insect hazard. The logging and slash disposal job will be of sufficiently high standard to leave the cutover areas in a condition that will maintain acceptable aesthetics and will be compatible with other acceptable uses of the area.

Trees shall be cut so that stumps are no higher than 12 inches on the high-ground side.

Trees will be utilized to the smallest top diameter acceptable to the buyer whenever market conditions permit, and it is economically feasible.

In selective cutting operations, care will be taken not to damage the residual stand during falling and skidding operations or to cause excessive soil damage.

Streamside buffer strips of 50-100 feet should be left on both sides of water sources when clearcutting bottom land

woodlands. A few trees may be removed in buffer strips as long as shade is maintained over the stream and there is no threat of erosion.

Steep skid trails should be waterbarred every 100-300 feet. Minimize the number of random skid trails in a logging operation. Stay on designated skid trails and yard logs to trail rather than driving skidding equipment next to felled tree. This prevents soil compaction and root damage to the residual stand.

In selective cutting, leave some den trees, tall snags, and keep a variety of tree species in the residual stand, particularly along woodland edges and streams. This will help maintain the diversity needed for many wildlife species.

When it is determined that a management plan would be beneficial, the cooperators will be encouraged to contact a professional forester for technical assistance on planning and marketing. The woodland plan should be incorporated into the landowners conservation plan.

Grazing - For hardwood stands grazing should be excluded. Livestock grazing in valuable hardwood stands can cause extensive damage. Soil compaction from sharp hooves, browsing or physical damage of desirable young hardwoods, and grazing of understory plants allowing grass to invade all reduce the productive capacity of the site for wood production. If the landowner's objective is to produce and maintain quality

hardwood timber, keep livestock out of the woods. For pine stands refer to Field Office Tech Guide, Section II-Forestland Interpretations.

"Diameter limit" timber sales are discouraged, as they tend to leave the timber in a "hygraded" condition. The definition of a "diameter limit" timber sales is where a minimum DBH (diameter breast height) is set for cutting timber (i.e., 10"), and all trees 10" and larger are harvested. If "diameter limit" timber sales are used, designate a higher diameter limit (i.e., 12-14") to be cut. This applies to ponderosa pine in the Black Hills, Pine Ridge, and inter-mountain areas.