

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

FOREST SITE PREPARATION

(Acre)

CODE 490

DEFINITION

Treating areas to improve site conditions for establishing a forest.

PURPOSES

- Encourage natural regeneration of desirable woody plants.
- Permit artificial establishment of woody plants.

CONDITIONS WHERE PRACTICE APPLIES

On all lands where establishment of woody plants is desired.

CRITERIA

General Criteria Applicable To All Purposes

The method, intensity and timing of site preparation will match the limitations of the site, equipment, and the requirements of the desired woody species.

An appropriate site preparation method will be chosen to protect any desirable vegetation.

Remaining slash and debris shall not create habitat for or harbor harmful levels of pests.

Remaining slash and debris shall not hinder needed equipment operations or create an undue fire hazard.

Erosion and/or runoff will be controlled.

Soil compaction and displacement will be minimized.

All chemicals will be applied in accordance with label guidelines.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice.

NOTE: WV NRCS does not make pesticide recommendations. Landowners should be instructed to read product labels and follow product specifications. Landowners may contact the West Virginia Division of Forestry or the WVU Cooperative Extension Service for pesticide recommendations.

The area will be protected from fire and destructive grazing.

For riparian sites to be tilled, leave a 3-foot untreated strip at the edge of the bank or shoreline.

Avoid sites that have had recent application of pesticides harmful to woody species to be planted.

If pesticides are used, apply only when needed and handle and dispose of properly and within federal, state and local regulations. Follow label directions and heed all precautions listed on the container.

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| Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service. |
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Fabric mulch may be used for weed control and moisture conservation for new plantings on all sites, particularly those with pronounced growing season moisture deficits or invasive, weedy species. Refer to Mulching, 484, for installation procedures.

Planting sites shall be properly prepared based on the soil type and vegetative condition. See Appendix 1.

CONSIDERATIONS

The site preparation method should be cost effective and protect cultural resources, wildlife habitat, threatened and endangered species, water resources, and identified unique areas.

Visual quality objectives should be considered when selecting site preparation methods.

Anticipate possible off-site effects and modify the site preparation design accordingly.

Consider personnel safety during site preparation activities.

PLANS AND SPECIFICATIONS

Plans will address method of site preparation, species, and protection required for desirable woody plants.

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

The following will be identified (as appropriate):

Purpose of practice

Area affected

Field location / Plan view

Methods (type of site preparation, timing, practice specifics, etc.)

Operation and maintenance plan

OPERATION AND MAINTENANCE

Practice areas should be checked periodically, but especially in the first three to six months after planting to see if additional control of competition is needed to insure the survival of desired vegetation.

Repair erosion control measures as necessary to ensure proper function. Access by vehicles during site preparation or after (i.e., before adequate tree and shrub establishment occurs) should be controlled to minimize erosion, compaction and other site impacts.

Appendix 1 – Site Preparation Techniques

Planting sites shall be properly prepared based on the soil type and vegetative condition.

Based on site conditions and predominant soil texture of the fine earth fraction, procedures include:

Tillable sites with loamy/clayey soils

-Sod and alfalfa sites

Eliminate cover 1 year to kill the sod or alfalfa. Till (moldboard plow, disk plow, rototiller or similar equipment) in the spring before planting the stock. A fall-sown crop of oats may be used where needed to control erosion.

Sod may be killed by non-selective herbicides the year previous to planting stock. Plant stock in the residue. On heavy soils, tillage is usually necessary to achieve a satisfactory planting when a tree planting machine is used.

-Small grain or row crop sites

If the site is in row crop, till (moldboard plow, disk plow, rototiller or similar equipment) in the fall or in the spring prior to planting the trees or shrubs. If the site has a plow or hard pan in subsoil, perform a deep disking or ripping operation in the fall. A fall-sown crop of oats may be used where needed to control erosion.

If the site is in small grain stubble, the stock may be planted in the spring without further preparation. If fabric mulch is to be installed, till in the spring before planting.

Tillage on steep slopes must be on the contour or cross-slope. A cover crop between the rows may be necessary to control erosion and sediment deposition on planted stock.

Tillable sites with sandy soils

-Sod and alfalfa sites

Till (moldboard plow, disk plow, rototiller or similar equipment) and plant to a

spring cover crop (corn, grain, sorghum, etc.) the year prior to planting. Leave a stubble cover in which to plant. A light disking may be needed before planting if fabric mulch is used.

Sod may be killed by nonselective herbicides the year prior to planting. Plant trees or shrubs in the residue.

When hand planting, scalp or strip an area at least 3 feet in diameter and two-to-four inches deep. (Place plants in the center of the scalped area.)

Rototill a 3-foot wide strip. (Place plants in the center of the tilled area.) Where a drip watering system will not be used, rototill the strip the year prior to planting.

-Small grain or row crop sites

If the site is in small grain, corn, or similar clean tilled crop, and it is reasonable free of weeds, plant stock in the stubble without prior preparation. It may be necessary to till a narrow strip with a disk or other implement to kill weeds or volunteer grain, or to prevent stalks and other residue from clogging the tree planter. If fabric mulch is used, disking may also be needed. A cover crop or stubble may be needed between the rows to protect the planting from erosion.

Non-tillable sites with sandy soils or erosive sites (including sites with undesirable brushy or herbaceous species)

On sites where it is not practical or possible to operate equipment (steepness, rockiness, etc.), where tillage of the site will cause excessive erosion, or where tillage of the site is impractical, the methods listed below may be used. Sites with undesirable brush will need initial treatments that physically removes and kills the brush species to facilitate planting of desired stock and prevent re-encroachment of the brush. Suitable methods include hand-cutting and removal, brush hogging, brush-blading, or other equivalent procedure with repeated treatment or use of herbicides to control re-sprouting.

Machine or hand scalp an area at least 36 inches in diameter with subsequent plant placement in the center of the scalped area.

Rototill a strip at least 36 inches wide the year prior to tree planting with subsequent plant placement in the center of the tilled strip.

Kill the vegetation in a 36-inch diameter or larger area or in a 36-inch or wider strip with a non-selective herbicide the year prior to planting and plant in the center or along the center-line of the treated area.

Furrowing – Furrowing can be used in area too rocky for planting machines. Do not use furrowing in areas of heavy soils and high water table. Plow two furrows on the contour in fall or winter.

Disking - A satisfactory disking job should expose mineral soil on about 60 percent of the area. This can be accomplished by leaving undisked strips between disked strips or rows.

See Brush Management – 314.

Wet Areas / Soils

Consider planting in prepared ridges – See Bedding -310.

Site Preparation for Natural Regeneration

Seed bearing trees - For natural seeding, seed-bearing trees are located on or next to the area, preferably along the windward side. Some acceptable species for natural seed source are white pine, pitch pine, shortleaf pine, Virginia pine, yellow poplar, white ash, and maples. See Table 1 for additional information on some species. Use of other species whose seed is dispersed by wind may be planned if needed to meet the objectives of the landowner. Expose mineral soil just prior to seedfall.

Spray prior to a scheduled harvest during the months of July-August.

Table 1. Seed-bearing information by species

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| SPECIES | SEED BEARING AGE MINIMUM (YEARS) | SEED DISPERSAL DATES | INTERVAL BETWEEN LARGE SEED CROPS (YEARS) |
|----------------|----------------------------------|----------------------|---|
| White Pine | 5-10 | Aug – Sept | 3-10 |
| Pitch Pine | 3-4 | Fall* | 4-9 |
| Shortleaf Pine | 5-20 | Oct-Nov | 3-10 |
| Virginia Pine | 5 | Oct-Nov | 1 |
| Yellow Poplar | 15-20 | Oct-Nov | 1 |
| White Ash | 20 | Sept-Dec | 3-5 |
| Sugar Maple | 30 | Oct-Dec | 3-7 |
| Red Maple | 4 | April-July | 1 |

* Many cones remain closed for several months or years.

Prescribed Burning

Prescribed burning may be used as a method of site preparation in some instances.

NOTE: Landowners should contact the West Virginia Division of Forestry for assistance in planning and implementing prescribed burning activities.