

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION**

SITE PREPARATION FOR WOODY PLANT ESTABLISHMENT

(Acre)
CODE 490

GENERAL SPECIFICATION

Procedures, technical details and other information listed below provide additional guidance for carrying out selected components. This material supplements the requirements and considerations listed in the conservation practice standard.

Planning Criteria

On forest and woodlands in New Mexico the New Mexico Energy, Minerals and Natural Resources Department provides technical assistance through the local district foresters. A landowner harvesting over 25 acres per year must obtain a state permit from the district forester and have a regeneration plan. The local district forester can produce the regeneration plan or a consultant can do the work. The local district forester maintains a list of state certified consultant foresters. Site Preparation for Woody plant establishment is usually an integral component of a forest and woodland management plan. Always check with the local district forester when making site-specific specifications on forestland.

The method, intensity and timing of site preparation will match the limitations of the site, equipment, safety, 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 undue fire hazard.

Erosion and/or runoff will be controlled.

Comply with applicable laws and regulations, including New Mexico Best Management Practices (BMPs).

All practices and procedures that involve ground-disturbing activities will be in compliance with applicable Cultural Resource Protection laws, regulations, and policies.

Seeding Disturbed Areas

Site should be prepared by grading, removing heavy debris where possible, ripping compacted soils, grading for drainage, and testing the soil if not using a standard fertilizer application. All areas bare of vegetation and ground cover, and not expected to revegetate naturally within one growing season, should be seeded to an adapted ground cover.

Surface water must be controlled.

If needed, apply fertilizer according to soil tests, or at a rate of at least 30 pounds per acre actual N and 60 pounds P₂O₅ per acre.

Work fertilizer into soil surface.

Use certified seed, scarify and/or inoculate if necessary.

Seed with a mixture from the suggested species by forest type (Table 1) and recommended seeding rates per acre (Table 3).

Seed the mixtures based on Table 2.

Apply seed by broadcast, drill, or hydroseeder method, if broadcast, double the seeding rate.

On slopes steeper than 20 percent, mulch with 2 to 2.5 tons hay or straw per acre or the equivalent of other materials such as small dimension logging slash.

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

Use of Slash

Where concentrated water flow is unavoidable, treetops, small logs, limbs, and rocks will be used to protect against rill and gully erosion. These materials will be arranged to serve as mini-dams and/or sediment filters as needed. Rock and brush dams will also be constructed as the need is determined by on-site inspection.

Filter Strips (Buffer strip)

During timber harvest filter strips will be planned on slopes above streams, other water bodies, and watercourses. The filter strip will keep logging debris out of streams, filter sediment from runoff, prevent temperature increases by shading the stream, and stabilize streambanks.

Filter Strip Width Guidelines:

<u>Slope Above Water, Water Course (Percent)</u>	<u>Width, Each Side of Stream (feet)</u>
0	50
10	70
20	90
30	110
40	130
50	160
60	180
70	200

Animal Damage Management

Livestock will be kept from grazing any newly seeded area. Refer to Use Exclusion for specifications.

Access, Skid Trails and landing Location and Design.

Roads and major skid trails will be located to serve the intended purpose; to control erosion; and manage surface and sub-surface water. Refer to Forest Trails and Landings for specifications.

Slash Treatment

Timber harvests normally produce significant amounts of "slash" including tops, limbs, and defective logs. Slash treatment is an important consideration and should be addressed in the timber

harvest plan. Treatment may involve simply "lopping and scattering" the slash evenly over the area. The slash should be cut down to a specified maximum height to help speed decomposition. Following pine harvests, lopped and scattered slash is normally cut until it lies within 18-24 inches of the ground. In some cases following clear cutting, slash is chopped, using dozer pulled roller-choppers, to break it up and put it in close contact with the soil to speed decomposition. Slash can also be burned in place, or piled and burned. If whole tree skidding is used, the cut trees will be skidded—tops and all—to a landing and then processed into logs. In that case nearly all the slash will be concentrated around the landings. Slash piles at landings can, in some cases, be sold as firewood or biomass fuel, burned in place, or simply left for wildlife use and decomposition. Untreated or poorly treated slash left in the woods can be unsightly, may cause elevated fire hazards in the years immediately following the harvest, and can restrict access to the area by livestock or humans.

Slash, while typically viewed as a problem that must be treated, does provide benefits as well. Where it can be treated and left scattered on the site, it will decompose and provide nutrients for future tree growth. Sometimes logging contracts require the logger to protect standing dead trees or to girdle and leave standing a few trees per acre. While those standing trees may appear to be slash, or logging residue, they can provide critical habitat for cavity nesting wildlife. In some cases, especially in hardwood stands, slash can be left to inhibit grazing and browsing damage to new seedlings. Some species of wildlife can also benefit from the protection provided by the tangle of branches and treetops that result from harvesting.

Types of Site Preparation:

Clearing with a dozer or tractor

Some sites may contain logging slash or the remnants of an old windbreak that must be removed to allow replanting with a planting machine. Clearing with a dozer is very effective, but costly. The debris may be piled and burned in the winter when there is snow cover to prevent any chance of the fire escaping. Note: A burning permit must be obtained from the local Fire Chief for any open burning in New Mexico. Often it is best, and least expensive, to pile or windrow the debris and simply let it decompose

over time. In some cases, planting spots or rows can be cleared instead of clearing the entire area. In other cases, it may be possible to hand plant right into the debris and completely avoid the cost of clearing.

Chemical site preparation

Existing vegetation in planting rows or spots can cause serious competition for new seedlings and should be controlled. Chemicals, normally contact herbicides, can eliminate or greatly reduce heavy stands of grass or weeds on the planting site. Chemicals must be used in accordance with the label directions. In most situations only rows or planting spots should be treated. Vegetation between rows and surrounding planting spots should normally be left in place to protect the seedlings and help limit erosion.

When planning for chemical site preparation remember that chemicals take some time to work. In many situations it will be necessary to apply the chemicals the fall or summer prior to the planned tree planting. This is especially true if warm season grasses are present on the planting site. Warm season plants cannot be effectively controlled by contact herbicides in the early spring. They do not begin active growth until late spring and early summer – after tree-planting season has passed. If both warm and cool season grasses are found on the planting site, such as a warm season grass pasture that has been invaded by smooth brome grass, chemicals to control the warm season plants may need to be applied in the summer and chemicals to control the cool season grasses applied later, in the fall.

Tillage for site preparation

Existing vegetation can also be removed by discing, plowing, rototilling, or using some other form of mechanical tillage. Normally only the rows should be tilled to minimize the area subject to erosion.

Where rows must run up and down hills, it may be necessary to periodically lift the tillage equipment and leave a gap of undisturbed vegetation to help control potential erosion problems. On slopes of 10 percent or more, tillage of rows is not recommended although individual planting spots may be cultivated. Tillage works best when it's done during the summer or early fall before planting, with a light follow-up tillage just prior to planting. On very dry sites,

summer following, by keeping it weed free for the entire growing season prior to planting, will help to conserve moisture and provide the best possible start for the new seedlings.

Other Site Preparation Considerations

Site preparation on sandy soils

Extensive site preparation is not normally recommended on very light or sandy soils since the potential for erosion is so great. Chemical control of the grass may be needed where a dense sod covers the site. Mechanical tillage opens the site to immediate erosion and should normally not be done. Tree planters designed for use in sandy soils are equipped with scalper blades which scrape away the surface vegetation as the planter moves along. The scalping action greatly reduces the competition for the new seedlings while minimizing the erosion risks.

Planting into crop residue

When windbreaks or other plantings are established in cropland it is sometimes possible to plant into the stubble from the previous year's crop. Milo, corn, and wheat stubble all make excellent planting locations and should not be disturbed prior to planting. Some cropland may contain significant amounts of carry-over herbicide residue and, in some cases, may need to be tilled and fallowed for a year to reduce the amount of herbicide. If "weed barrier" mulch is to be used it may not be possible to retain the crop stubble in the planting rows where the mulch material will be placed. Even when the rows must be tilled it may be possible to leave the stubble between the rows.

Weed Control

Nearly all tree plantings in New Mexico will require follow-up weed control to ensure their success. Some plantings such as under-planting into an existing stand of trees, or establishing a block of trees and shrubs for wildlife cover, where varying levels of seedling survival could still provide acceptable benefits, might be successful without weed control. Most plantings will benefit from weed control and many will fail without it.

Chemical weed control

After the planting operation is complete (note: some chemicals are intended to be applied before planting) weeds in the tree rows or planting spots can be controlled by applying chemicals labeled for

that purpose. Pre-emergent herbicides intended to prevent the establishment of weed seedlings near the trees are perhaps the most commonly used. Contact herbicides can also be used to control weed seedlings after they emerge. Chemicals must always be used following label directions. If used carelessly weed control chemicals can harm or kill the seedling trees or other desirable vegetation.

Mechanical weed control

Limit cultivation to the minimum needed to control weeds. Excess cultivation makes the area more susceptible to erosion and may damage the trees and shrubs. A variety of tillage equipment and cultivators can be used to control weed growth around trees. Discs, rototillers, and sweeps or other farm crop cultivators can be adapted to cultivating near tree rows. Specialized equipment designed for cultivation around trees can also be purchased.

Whenever mechanical methods are used to cultivate near trees be careful to prevent damage to the above ground and below ground parts of the trees. Even small nicks are potential entrance points for disease. Since cultivation normally is conducted several times each season, and may be done over several years, even seemingly minor damage can add up to a serious problem. Cultivation equipment should be kept shallow to minimize disturbance and damage to tree root systems.

Mulch

Both artificial and natural mulches can provide effective weed control. Mulches offer the advantage of providing long-term weed control with only one application.

Organic mulches may be effective for a season or two and products such as plastic "weed barrier" may last for five years or more. Applying any type of mulch must be done carefully to prevent damage to the seedlings. Organic mulches should be applied no more than 3 to 4 inches in depth. Deep beds of mulch can provide habitat for voles, or other rodents that may feed on bark and damage or kill trees.

Site Preparation for Hand Planted Seedlings

Preferably, vegetation management will be done by spot or strip application of herbicide prior to planting date. Seedlings will then be planted in treated area.

If herbicides are not used an area two feet square will be scalped of all vegetation. Seedlings will be planted in center of scalped area.

CONSIDERATIONS

The chosen method should be cost effective and protect cultural resources, wildlife habitat, water and soil resources and identified unique areas.

PLANS AND SPECIFICATIONS

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

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.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation) and repair and upkeep of the practice (maintenance):

Periodic inspections during treatment activities are necessary to ensure that objectives are achieved and resource damage is minimized. Items to be watchful for during inspections include but are not limited to the following, excess slash, overland water flow and soil erosion following rain events, invasive and/or noxious weeds, untreated compaction areas and evidence of problem wildlife populations.

Contact the local NRCS conservationist immediately when unexpected problems, questions arise during practice installation.

RECOMMENDED SPECIES FOR SEEDING LOGGING-DISTURBED AREAS AND BURNS					
SPECIES	SPRUCE-FIR ZONE	DOUGLAS-FIR ZONE	UPPER-PONDEROSA ZONE	LOWER-PONDEROSA ZONE	PINION-JUNIPER ZONE
Arizona fescue (Redondo)	X	X	X	X	
Slender Wheatgrass (San Luis)	X	X	X		
Mountain Brome	X	X	X		
Timothy (Climax)(ITASCA)	X	X	X		
Yellow Sweet Clover			X	X	X
Silver Buffaloberry	X	X	X		
White Dutch Clover	X	X	X	X	
Big Bluestem			X	X	X
Spike Muhly (El Vado)			X	X	X
Western wheatgrass (Arriba)		X	X	X	X
Blue Grama (Hachita)				X	X
Sand Dropseed					X
Reed Canarygrass	X	X	X		
Orchardgrass (Napier) (Paiute)		X	X	X	X
Smooth Brome (Baylor) (Manchar)		X	X		
Tall Fescue (Alta)			X	X	X
Black grama (Nogal)				X	X
Streambank Wheatgrass (Sodar)			X	X	X
Sheep Fescue (Sheep)	X	X	X		
Pubescent Wheatgrass (Lunas)		X	X	X	
Sideoats Grama (Vaughn)				X	X
Indian Ricegrass (Paloma)					X
Little Bluestem (Pasture)			X	X	X
Galleta Grass (Viva)				X	X
New Mexico Feather Grass					X
Woolly Indianwheat			X	X	
Lupine	X	X			
Penstemon (Bandera)	X	X			
Columbine	X	X			
Purple prairie Clover					X
Alfalfa (Ranger)	X	X	X	X	
Winterfat			X	X	X

PLANTING DATES				
RESOURCE AREA	WARM SEASON		COOL SEASON	
	FROM	TO	FROM	TO
HP-1, CP-1	01-Apr	01-Aug	15-Feb	01-Aug
HP-2, HP-3	15-Jun	01-Aug	15-Jun	01-Aug
CP-2, CP-3	15-Jun	01-Aug	01-May	01-Aug
CP-4	01-Jul	01-Sep	15-Jun	01-Sep
WP-1*, WP-2	01-Jun	01-Aug	01-Jul	15-Aug
WP-3	15-Jun	15-Aug	15-Jun	15-Aug
RM-1*, RM-2*, AN-1*	01-Jun	01-Aug	01-Jun	01-Aug
HIV-1, HIV-2	01-Jul	01-Aug	15-Jun	15-Aug
AN-2, AN-3	01-Jul	15-Aug	15-Jun	15-Aug

Dormant fall cool season seedings will produce satisfactory results.

Treatment of seed with a fungicide to prevent seed deterioration is recommended.

RECOMMENDED SEEDING RATES	
RATE PER ACRE - POUNDS OF PURE LIVE SEED (PLS)	
GRASSES (COOL SEASON)	SEEDING RATE PROVIDES 20 PLS/SQ.FT.
Arizona fescue (Redondo)	1.60
Slender Wheatgrass (San Luis)	6.00
Mountain Brome	16.00
Timothy (Climax)(ITASCA)	1.00
Spike Muhly (El Vado)	1.00
Western wheatgrass (Arriba)	8.00
Indian Ricegrass (Paloma)	6.00
Tall Fescue (Alta)	3.60
Streambank Wheatgrass (Sodar)	5.10
Sheep Fescue (Sheep)	1.30
Pubescent Wheatgrass (Lunas)	9.60
GRASSES (WARM SEASON)	SEEDING RATE PROVIDES 20 PLS/SQ.FT.
Big Bluestem	5.00
Blue Grama (Hachita)	1.50
Sand Dropseed	1.00
Sideoats Grama (Vaughn)	4.00
Little Bluestem (Pasture)	3.00
Galleta Grass (Viva)	5.00
Reed Canarygrass	1.60
Orchardgrass (Napier)	1.60
Orchardgrass (Paiute)	2.30
Smooth Brome (Baylor) (Manchar)	7.00
Black Grama (Nogal)	1.00
FORBS	SEEDING RATE PROVIDES 20 PLS/SQ.FT.
Yellow Sweet Clover	3.00
White Dutch Clover	1.00
Penstemon (Bandera)	3.00
Purple Prairie Clover	3.00
Alfalfa (Ranger)	4.00
Winterfat	3.00

Seeding rates given are for straight seeding of the species. Reduce seeding rates for mixtures in proportion to the percentage of each species to be planted in the mix.

Limited to no more than one pound per acre PLS in any mix.