TREE/SHRUB SITE PREPARATION

**JOB SHEET - Forestry Series 490**

|  |  |  |
| --- | --- | --- |
|  | **Natural Resources Conservation Service****Michigan** |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Client/operating unit: |       | Farm no.: |       | Tract no.: |       |
| Farm/ranch location: |       | Field no.: |       | Program: |       |
| Specifications date: |       | Planned installation date: |       |
| Proposed treatment acres: |       |



*Site preparation eliminates weed competition from the area to be planted to trees and/or shrubs, helping to get the plants off to a good start.*

**Purpose of this Document**

This Conservation Design Sheet describes the techniques used to prepare a site for tree and/or shrub planting.

In additional to the primary practice, e.g., Tree/Shrub Establishment (612), Windbreak/Shelterbelt Establishment (380), also refer to following Michigan NRCS Conservation Practice Standards and associated job sheets for additional considerations for tree and shrub establishment:

* Herbaceous Weed Control (315)
* Mulching (484)
* Cover Crop (340)

Additional practices may also be required to address additional resource concerns, e.g., Brush Management (314), Access Control (472).

#### Site Preparation

Site preparation prior to tree/shrub planting or direct seeding is usually necessary on any site with existing vegetation to reduce competition and assure tree survival. Site Preparation may not be needed on bare or very sparsely vegetated sites – recently tilled, following an annual crop (e.g. annual grains, soybeans), moss, sparse Junegrass, etc.

Site preparation can be accomplished through either mechanical or herbicide treatment or both. Long-term techniques such as fabric weed barriers and mulch can be good alternatives for weed control as well.

Site preparation can be done to the entire field (where risk of soil erosion is minimal), in 36” wide strips centered on the planting rows, or in 36” x 36” square, or 36” diameter spots centered on individual trees planting sites.

Mechanical Treatment

This will provide initial control of weed competition. Follow-up weed control will be needed during or after the first growing season to provide adequate control of competition. Generally disking will remove broadleaf weeds but plowing may be necessary to remove grass weeds.

Mechanical site preparation can yield good results when done in the fall prior to a spring planting. On highly erodible sites, mechanical site preparation should be done in the spring prior to planting, and the need for a cover crop should be assessed.

Select the mechanical site preparation techniques from the following:

* Bare ground, light cover of vegetation (moss, open sand, light Junegrass, etc.): No site preparation is necessary.
* Medium cover of vegetation (medium density Junegrass, light quackgrass, etc.): Kill or destroy the sod layer with one of the following methods:
	+ Use tillage (plowing, disking, etc.).
	+ Use shallow (2 to 4” deep) furrowing.
	+ Use mechanical or hand scalping on sands, sandy loams, and loamy sands with light to moderate grassy and/or herbaceous competition.
* Heavy cover of vegetation (dense Junegrass, dense quackgrass, hayland/pasture, sweet fern, etc.): Kill or destroy the sod by plowing or other tillage early in the fall before spring planting. It may be necessary to spray with an herbicide either in late fall or early spring to finish the kill on sod-forming grasses.

Herbicide Treatment

This will provide initial control of weed competition but repeated applications will be needed to provide adequate control of competing vegetation for three or more years after planting. Select chemical site preparation techniques from the following:

* Spot or band treat an area a minimum of 36” wide around the tree/shrub planting site. Use only herbicides labeled for the species being planted, the intended use of the trees and shrubs, and the weeds to be controlled. Read and follow herbicide label instructions. See References for further information on herbicide use.
* For spring plantings, when dense vegetative cover is present, herbicide should be applied in late summer or early fall prior to the planting year, if possible. This practice normally will provide optimum weed control and better tree/shrub survival. An assessment of the weed re-growth should be made in the spring prior to planting, with herbicide applied if needed.
* For fall plantings (only recommended on well and moderately well drained sands, loamy sands, and sandy loams due to frost-heave potential), apply herbicides in the previous spring if possible to assure a weed-free planting bed. An assessment of the weed re-growth should be made in the fall prior to planting, with herbicide applied if needed.

**Additional Considerations:**

Site Preparation for Direct Seeding

Prepare the seeding bed by exposing mineral soil using mechanical or chemical methods described above on the entire field, prescribed burning, or a combination of these methods. If possible, mix humus in with the mineral soil to prepare a seedbed.

Fabric Weed Barriers and Mulch

Fabric weed barriers are porous, yet opaque material that is installed over a tree or shrub seedling. They permit water to seep through to the seedling, but prevent weed growth. They are installed as 3’ x 3’ squares over individual plants, or as long rolls that can be rolled out over rows of trees.

Mulch is organic or inorganic material that is spread around the individual seedling to help retain soil moisture, moderate soil temperature, and prevent weed growth. Apply mulch in a 3’ diameter circle around each seedling, 2 to 3” deep, and pulled back from the plant stem slightly. Straw or other similar mulch generally should be avoided as it can encourage mice and other small herbivores that may damage the seedlings.

If weed barriers or mulch will be used for follow-up weed control, site preparation may not be required. However, in sites with aggressive difficult-to-kill weeds (e.g., reed canary grass), mechanical or chemical site preparation should be used prior to planting and installation of the weed barriers or mulch.

If fabric weed barriers or mulch are to be used, refer to the NRCS-MI Mulching (484) Conservation Practice Standard.

Cover Crops

Cover crops or permanent sod strips may be needed between tree/shrub rows on sandy or highly erosive sites in order to prevent erosion and damage to seedlings by sandblasting. Cover crops are also used to minimize the risk of more aggressive or invasive vegetation (e.g., Canada thistle) establishing. If cover crops are to be used, refer to the Michigan NRCS Cover Crop (340) Conservation Practice Standard.

##  Tree/Shrub Site Preparation – Specifications Sheet

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Producer name\*: |       | Farm no.: |       | Tract no.: |       |
| Farm/ranch location: |       | Field no:  |       | Program: |       |
| Specifications date: |       | Acres to be treated\*: |       |
| Tree and shrub spp. planned\*: |       |
| Planting/regen. method planned\*: |       |
| Initial site preparation method\*: |       | Date\*: |       |
| Additional information: |       |
| Secondary site prep. method\*: |       | Date\*: |       |
| Additional information: |       |
| Map of site\* – attach a sketch, map, or aerial photo indicating the area this practice is to be installed.  |

\*required for certification of the practice.

**DESIGN AND INSTALLATION/LAYOUT APPROVAL:**

I certify this practice has been designed with specifications to meet the conservation practice standard and that the client has been advised of installation and layout elements:

|  |  |
| --- | --- |
|  |       |
| NRCS or TSP Signature | Date |

**CLIENT REVIEW AND ACCEPTANCE:**

The client acknowledges that:

a. They have received a copy of the specifications and understand the contents including the scope and location of the practice.

b. They have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.

c. No changes will be made in the installation of the job without prior concurrence of the NRCS.

d. The practice life is      .

I have reviewed all specifications and agree to install as specified:

|  |  |
| --- | --- |
|  |       |
| Client Signature | Date |

**Certification of Tree/Shrub Site Preparation:**

The Tree/Shrub Site Preparation (490) has been installed according to the Michigan NRCS Practice Standard and as specified above.

|  |  |  |  |
| --- | --- | --- | --- |
|  |       |  |       |
| NRCS or TSP Signature | Date | Client Signature | Date |

**References:**

Bonner, Franklin T. and Robert P. Karrfalt (eds.). 2008. The Woody Plant Seed Manual. Ag. Handbook No. 727. USDA Forest Service. Washington, D.C.

Dornbush, Laurie J and M.R. Koelling. 1992. Growing Christmas Trees in Michigan. Michigan State University Extension Bulletin E1172. East Lansing, MI. <http://forestry.msu.edu/extension/ExtDocs/xmastree.htm>.

Koelling, M.R. and R.B. Heiligmann. 1993. Recommended Species for Christmas Tree Plantings in the North Central United States. North Central Regional Extension Bulletin No. 479. Michigan State University, East Lansing, MI. <http://web2.msue.msu.edu/bulletins/Bulletin/PDF/NCR479.pdf>

Lantagne, Douglas O. and Melvin R. Koelling. 1997. Tree Planting in Michigan. Extension Bulletin E-771. Michigan State University Department of Forestry. East Lansing, MI.

Neumann, D. 2001. Controlling Broadleaf Weeds and Grasses for Plantation Site Preparation. MSU Extension Bulletin E2754. East Lansing, MI. <http://forestry.msu.edu/extension/extdocs/E2754.pdf>.

Neumann, D. 2001. Herbicides for Year-of-Planting Weed control in Hard and Conifer Plantations. MSU Extension Bulletin E2752. East Lansing, MI. <http://forestry.msu.edu/extension/ExtDocs/E2752.pdf>

Pijut, P.M. 2003. Planting Hardwood Seedlings in the Central Hardwood Region. Hardwood Tree Improvement and Regen. Center. FNR-210. <http://www.agriculture.purdue.edu/fnr/HTIRC/documents/FNR-210.pdf>

Sargent, Mark and K. S. Carter. 1999. Managing Michigan’s Wildlife: A Landowner's Guide. Michigan Dept. of Natural Resources and Michigan State University. <http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/index.htm>

USDA-NRCS. 2002. Illinois Direct Seeding Handbook. USDA-NRCS, AISWCD, IL Dept. of Nat. Res., & IL EPA. <http://www.il.nrcs.usda.gov/technical/forestry/dshndbk.html>

Wisconsin DNR. 2006. Herbicides for Forest Management. Madison, WI. <http://dnr.wi.gov/forestry/fh/weeds/herbicides.htm>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.