

NATURAL RESOURCES CONSERVATION SERVICE
MONTANA CONSERVATION PRACTICE STANDARD

TREE/SHRUB ESTABLISHMENT (ACRE)

CODE 612

DEFINITION

Establishing woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration.

PURPOSE

Establish woody plants for:

- forest products such as timber, pulpwood, and energy biomass
- wildlife habitat
- long-term erosion control and improvement of water quality
- treating waste
- storing carbon in biomass
- reduce energy use
- develop renewable energy systems
- improving or restoring natural diversity
- enhancing aesthetics.

CONDITIONS WHERE PRACTICE APPLIES

Tree/shrub establishment can be applied on any appropriately prepared site where woody plants can be grown.

Utilize other **Field Office Technical Guide (FOTG), Section IV, practice standards and Specifications** for specialized tree/shrub establishment situations, e.g., Riparian Forest Buffer (**Code 391**); Alley Cropping (**Code 311**); Windbreak/Shelterbelt Establishment (**Code 380**); Critical Area Planting (**Code 342**); Hedgerow Planting (**Code 422**).

CRITERIA

General Criteria Applicable to All Purposes

Composition of species will be adapted to site conditions and suitable for the planned purpose(s).

See the FOTG, Section II, Conservation Tree/Shrub Suitability Groups (CTSG) for a listing of conservation trees and shrubs suited to the soils and environmental factors at the site.

See the Woodland Management and Productivity Table of the Soil Survey Manual for which tree species are found on forested soils and which trees to plant.

Shrubs adapted to particular range sites are listed in the Ecological Range Site Descriptions located in FOTG, Section II-E-8.

Trees and shrubs suited for riparian areas are listed in the FOTG, Section IV, Practice Standards and Specifications for Riparian Forest Buffer (Code 391).

Contact your local nursery, community forester, or Extension agent for species suitable for landscaping and enhancing the aesthetics of an area.

No plants on the Federal or state noxious weeds list shall be planted.

Planting or seeding rates will be adequate to accomplish the planned purpose for the site.

When establishing a windbreak/shelterbelt, refer to FOTG, Section IV, Practice Standards and Specifications for Windbreak/Shelterbelt Establishment (Code 380) for between row and within row spacing guidelines.

NRCS, MT
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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.

NOTE: This type of font (**AaBbCcDdEe 123..**) indicates NRCS National Standards.
This type of font (**AaBbCcDdEe 123..**) indicates Montana Supplement.

Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.

Only viable, high-quality and adapted planting stock or seed will be used.

Planting stock must be of known origin and adapted to the site. Named varieties are recommended and should be used when they are available. Utilize local nurseries for planting stock.

Keep roots of bareroot stock moist during planting operations by placing in partially aerated water-soil slurry, peat moss, super-absorbent (e.g., polyacrylamide) slurry or equivalent material (bentonite). Roots and rooting medium of container stock shall be kept moist at all times by periodic watering.

A precondition for tree/shrub establishment is appropriately prepared sites. Refer to **FOTG, Section IV** for practice standard Tree/Shrub Site Preparation (**Code 490**).

The planting area must be free of living vegetation and competing vegetation controlled before planting.

Sites with undesirable brush will need an initial treatment that physically or chemically removes and kills the brush species to facilitate planting or seeding of desired stock. Chemicals will be applied according to label.

Adequate seed sources or advanced reproduction needs to be present or provided for when using natural regeneration to establish a stand.

Selection of planting technique and timing will be appropriate for the site and soil conditions.

The acceptability and timing of coppice regeneration shall be based on species, age and diameter.

The planting will be protected from plant and animal pests, **excessive wind and sun exposure**, and fire. Refer to **FOTG, Section IV** for standard Integrated Pest Management (**Code 595**), to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring and pest suppression.

Each site will be evaluated to determine if mulching, supplemental water or other cultural

treatments (e.g., tree protection devices, shade cards, brush mats) will be needed to assure adequate survival and growth.

Additional Criteria for Treating Waste

Species used to treat waste shall have fast growth characteristics, extensive root systems, high nutrient uptake capacity and tolerance of the planned effluent.

Additional Criteria for Improving or Restoring Natural Diversity

Composition of species selected for planting or those favored for natural regeneration will be native to the site and create a successional stage or state that can progress to the potential natural plant community.

Additional Criteria for Storing Carbon in Biomass

The species and plant communities that attain biomass more quickly will sequester carbon faster. The rate of carbon sequestration is enhanced as trees and/or shrubs mature and soil organic matter increases.

Select plants that have higher rates of growth and potential for carbon sequestration in biomass and are adapted to the site.

Plant species at the appropriate stocking rate for the site.

Additional Criteria for Developing Renewable Energy Systems

Select plants that can provide adequate kinds and amounts of plant biomass to supply identified bioenergy needs.

Intensity and frequency of energy biomass removals will be managed to prevent long-term negative impacts on the system.

The harvesting of energy biomass shall be accomplished in a manner that will not compromise the other intended purpose(s) and functions.

CONSIDERATIONS

Geo-textile fabric, in rolls or mats and other appropriate organic mulch materials, may be used

for controlling competing vegetation and moisture conservation for new plantings on all sites.

Supplemental water may be provided as needed to improve establishment, health, and vigor of the woody plantings.

Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications, Irrigation System, Micro-irrigation (Code 441), has been developed for detailed information regarding this practice.

Priority should be given to plant materials that have been selected and tested in tree/shrub improvement programs. All plant materials should comply with minimum standards such as those as established by the American Nursery and Landscape Association, Forest Service, or state-approved nursery.

Plans for landscape and beautification plantings should consider foliage color, season and color of flowering, **form** and mature plant height. **Include conifers in the planting.**

Consider using diverse species combinations which best meet locally native wildlife and pollinator needs.

Consider the invasive potential when selecting plant species.

Select appropriate plant species for the needs of wildlife species you are trying to attract. To enhance the food value of plantings, include fruit and berry producing shrubs. To enhance wildlife cover, select dense trees and shrubs or conifers.

Plantings with greater species diversity provide better wildlife values. See FOTG, Section IV, Practice Standards and Specifications for Upland Wildlife Habitat Management (Code 645) for more guidance.

Tree/shrub arrangement and spacing should allow for and anticipate the need for future **structures, other improvements** or access lanes for purposes of stand management.

Adequate space should be left for cultivation at mature growth stage.

Residual chemical carryover should be evaluated prior to planting and alter species selection and/or timing of planting/seeding. **Obtain the history of pesticides applied at the site to be planted and what**

limitations they may impose. Consider pesticide drift from adjoining fields.

Plants that may be alternate hosts to undesirable pests should be avoided. Species diversity should be considered to avoid loss of function due to species specific pests. Avoid planting forest tree species if the site has known insect or disease infestations affecting those species.

When underplanting, trees should be planted sufficiently in advance of overstory removal to ensure full establishment. **Plantings should not be made if the overstory will be removed in less than ten years.**

PLANS AND SPECIFICATIONS

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

As a minimum, the Tree/Shrub Establishment practice will have the following components in its conservation plan:

- **A narrative that describes the producer's goals and objectives. Identify why the practice is needed and feasible.**
- **An environmental assessment of the planned practice that includes the potential impacts on soil, water, animals, plants, air and humans.**
- **An alternatives narrative that identifies and describes several methods that could be used to address the resource issue. Also identifying the producer-selected method.**
- **The Montana Tree/Shrub Establishment practice job sheet and specification.**
- **Plan map and soil map of site with location of practice on the map.**
- **Operations and maintenance instructions.**

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).

Access by vehicles or equipment during or after tree/shrub establishment shall be controlled to protect new plants and minimize erosion, compaction and other site impacts. Refer to **FOTG, Section IV, for the standard and specification for Access Control (Code 472).**

The trees and shrubs will be inspected periodically and protected from adverse impacts including insects, diseases or competing vegetation, fire and damage from livestock or wildlife.

If needed, competing vegetation will be controlled until the woody plants are established. **In forest plantings, this is addressed during site preparation or at time of planting.**

Noxious weeds will be controlled. Refer to **FOTG, Section IV, the standard and specification for Integrated Pest Management (code 595).** Use caution in the application of chemical weed sprays in the vicinity of woody plantings. Strict adherence to label recommendations is essential to avoid damage to plantings.

Mulches, fabrics, and tree mats will control competing vegetation and reduce the amount of maintenance needed to keep the planting growing.

Replanting of dead trees or shrubs will be required when survival is inadequate. Supplemental water will be provided as needed.

Maintaining the planting in a vigorous growing condition will aid in control of damaging pests. Early detection and application of control measures can often prevent extensive damage.

Protect plantings from fire by clean cultivation or the use of vegetative fire breaks. Control animal and rodent damage by using fencing, repellents, clean tillage, traps or poison.

Periodic applications of nutrients may be needed to maintain plant vigor. If nutrients are applied, refer to **FOTG, Section IV, the standards and specifications for Nutrient Management, (Code 595).**

After trees and/or shrubs are established, refer to **FOTG, Section IV, the standards and specifications for Forest Stand Improvement (Code 666), and Tree/Shrub Pruning (Code 660),** for subsequent management.

REFERENCES

Talbert, Cheryl 2008. Achieving Establishment Success the First Time. Tree Planters Notes, Vol. 52 No. 2 pages 31-37.