

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

WINDBREAK/SHELTERBELT RENOVATION

(Feet)

CODE 650

DEFINITION

Replacing, releasing, and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding rows to the windbreak or shelterbelt or removing selected tree and shrub branches.

PURPOSES

Restoring or enhancing the function of existing windbreaks or shelterbelts.

CONDITIONS WHERE PRACTICE APPLIES

In any windbreak or shelterbelt that is no longer functioning properly for the intended purpose.

CRITERIA

The following criteria will be used individually or in combination to accomplish windbreak or shelterbelt renovation:

Individual trees or shrubs will be identified for thinning to reduce plant competition or alter the density of the planting.

Pruning of trees will be used to remove diseased branches or alter the density of the planting.

Entire or partial rows of trees or shrubs will be identified for removal to release adjacent rows of trees or shrubs.

Identified rows of trees or shrubs in decline will be cut to the ground to allow sprouting (coppice) and improve density and vigor.

When competing herbaceous vegetation is affecting the health of the planting, the trees or shrubs will be released mechanically or chemically to improve the growth and vigor.

Additional rows of trees or shrubs will be added adjacent to or within an existing windbreak/shelterbelt

to improve density. Existing growing space, shade level and root competition will be evaluated and determined to be at acceptable levels to permit unimpeded growth to new plantings. (Note: Extending the length of an existing windbreak is handled under Windbreak/ Shelterbelt Establishment Practice 380).

Residual plants will be protected during the renovation.

Comply with applicable laws and regulations, including the state's Best Management Practices (BMPs).

CONSIDERATIONS

Renovation may be accomplished over a period of years.

Debris should be removed from the site and disposed properly if the debris will cause insect, disease, fire, or operability problems.

Consider shade tolerance when selecting species for replanting within or adjacent to an existing windbreak or shelterbelt.

It is not considered renovation when rows of a windbreak or shelterbelt are merely extended in length.

Damaging pests will be monitored and controlled.

Wildlife needs should be considered when selecting tree or shrub species. Species diversity, including use of native species, should be considered.

Planning

General field examination should be done prior to designing a renovation system for an existing windbreak.

Items to look for in determining if a windbreak needs renovation are:

- a. Does the existing windbreak meet the needs of the current and proposed land use?
- b. Are the wind velocities reduced necessary to meet current land user objectives?
- c. Is the windbreak structure endangered due to either tree or shrub species decline in health or vigor because of overcrowding, past maturity, and presence of insects or disease?
- d. Are there openings that allow damaging or unwanted winds to penetrate the windbreak?
- e. Has the windbreak grown so large or become trashy or allow too much shade that it needs to be renovated to meet land use objectives?

Field investigations should be undertaken to determine if normal maintenance may not be sufficient to maintain healthy plant vigor. Removal of competition from grass, insect and disease control and maintaining adequate supplemental water may eliminate the need for renovation.

The renovation planning process is an excellent time to evaluate wind erosion control needs for present and future land uses. Are more wind barriers needed for desired protection?

If site preparation is necessary see Forest Site Preparation 490A – Forest Site Preparation – Windbreaks.

Plan for temporary wind control until the renovated wind barrier has grown to provide the necessary degree of protection. Wind erosion control barriers to consider are:

- a. Artificial barriers;
- b. Increasing residues, if needed;
- c. Herbaceous barriers, either annual crop or perennials;
- d. Strip cropping, include trap strip (less than 2' high).

Shearing of existing windbreaks to maintain or improve form or limit height growth is considered to be maintenance.

Cultural Resources Considerations

Determine if installation of this practice with any others proposed will have any effect on any cultural resources. NRCS's objective is to avoid any effect to cultural resources and protect them in their original location. GM 420, Part 401, the California Environmental Handbook and the training for the California Environmental Assessment Worksheet specify how the NRCS must account for cultural resources. The Field Office Technical Guide, Section II contains general information, with Web sites for additional information, about cultural resources. The Environmental Handbook is online at www.ca.nrcs.usda.gov/rts/rts.html.

Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species.

If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Water Quantity

This practice is to widen or reduce, partially replant, remove or replace selected trees and shrubs to improve existing field, farmstead or feedlot windbreaks. No significant effects on water quantity may be anticipated.

Water Quality

Disturbance of the practice area by renovation activities and equipment may cause temporary increase in erosion but these effects would be short term and are not expected to be severe. Overall effects may reduce overall erosion and sediment yields. The improved barrier may decrease watercourse sedimentation from wind-blown soil from fields that would be protected by the windbreak. This reduction in sedimentation would reduce the availability of sediment and sediment-attached substances for transport to receiving waters. Chemical effects on water quality are not expected to be significant because chemicals are not heavily used in the renovation. If chemicals are used, they should be used within label requirements to prevent environmental damage. Chemical containers should be disposed in a safe, approved manner.

PLANS AND SPECIFICATIONS

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

A complete implementation plan will be prepared for each windbreak to be renovated. Each plan will include the following elements.

- a. species to be removed/ thinned/ cutback.
- b. species to be planted and planting dates.
- c. ground preparation.
- d. irrigation for windbreak including kind of system and water requirements if needed.
- e. disposal plan of woody material
- f. description of other wind erosion control practices that may be required.
- g. method for excluding livestock.
- h. maps or illustrations as needed.

Wind erosion protection practices will be included in developing a field windbreak renovation plan.

The following practices will be used either as a single practice or as a system to reduce erosion within allowable limits:

Residue Management – Standard 329 A,B, C
 Cover Crop – Standard 340B
 Surface Roughening – Standard 609
 Mulching – Standard 484
 Stripcropping – Standard 586

The Standard and Specification for Windbreak/Shelterbelt Establishment – Standard 380 will be used as appropriate for selecting species, row position, spacing in and between the row, method of ground preparation, planting methods and other maintenance needs.

Eucalyptus and poplar have been used for windbreaks. Coppicing - reproducing trees originating from vegetative sprouting (stump sprouts, root suckers) - can be used to renovate Eucalyptus and poplars. To ensure adequate regeneration, the following steps in harvesting of the existing trees will be done:

- a. Cut as low a stump as possible. Stumps should not exceed 16 inches in height. Cut on an angle to shed water. Tall stumps can produce weakly attached sprouts.
- b. Keep fire away from stumps. Do not burn debris on the stump. Fire will eliminate the trees ability to re-sprout.
- c. It is not necessary to thin the sprouts unless it is necessary to control lateral branching that might limit operations or prevent access.

Windbreak renovation plans will also consider aesthetics and other impacts.

An additional row may be planted next to an existing row that is in need of removal. This will allow some wind protection until the new windbreak is functional. If this method is selected, the following steps will be taken.

- a. There must be sufficient space to allow for the newly planted trees to grow to maturity.
- b. Enough space must be allowed to remove the older barrier without damaging the replacement barrier.
- c. Supplemental water must be assured to ensure establishment and survival of the new barrier.

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):

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

Periodic applications of nutrients may be needed to maintain plant vigor.

Replacement of dead trees or shrubs in new plantings or rows will be continued until the barrier's function is restored.

Vegetative competition will be controlled as long as it inhibits the renewed growth and vigor of the windbreak or shelterbelt.

Supplemental water will be provided as needed.

Trees and shrubs will be protected from fire and animals.

Additional thinning, pruning, or coppice management may be needed in the future to maintain function.

The windbreak/shelterbelt will be monitored for potential damaging pests.