

**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 or shrub branches.

PURPOSE

Restoring or enhancing the original planned function of existing windbreaks or shelterbelts, and thinning where necessary for the health of established windbreaks.

CONDITIONS WHERE PRACTICE APPLIES

In any windbreak or shelterbelt that is no longer functioning properly for the intended purpose, or that has been damaged by ice, wind, insects or disease.

CRITERIA

The following criteria will be used individually or in combination to restore or enhance the performance of a partially functioning or non-functioning windbreak or shelterbelt:

- To reduce plant competition or alter the density of the planting, individual trees or shrubs will be identified for thinning.
- To remove diseased branches or alter the density of the planting, the trees or shrubs will be pruned or sheared.
- To release adjacent rows of trees or shrubs, entire or partial rows of trees or shrubs will be identified and removed.
- Coppicing is the cutting back of trees and shrubs to encourage young growth. This is used to improve density and/or vigor of identified rows of trees or shrubs in decline. Trees or shrubs with coppicing capability will

be cut close to the ground to allow sprouting.

- To improve the growth and vigor of trees and shrubs, competing herbaceous vegetation will be mechanically or chemically controlled.
- To improve windbreak or shelterbelt density, additional rows of trees or shrubs will be added adjacent to or within an existing windbreak or shelterbelt. 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.
- All woody vegetation and other debris which could interfere with new planting and maintenance operations will be removed and disposed of prior to planting.
- Residual plants will be protected during the renovation.
- Comply with applicable federal, state, and local laws and regulations during the installation, operation, and maintenance of this practice.
- All renovation activity must account for the change in the resulting snow drift pattern, its impact on the residual or replaced plants, and any structures or areas needing protection from blowing and drifting snow.

CONSIDERATIONS

Renovation may be accomplished over a period of years.

Renovations may involve a combination of actions to restore or create the proper spacing, density, structure and species composition in a windbreak/shelterbelt. The main consideration in developing a renovation plan is determining the reason the existing windbreak is deteriorating or lacking in vigor.

The need for renovation may be lack of

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [electronic Field Office Technical Guide](#).

maintenance, drought, herbicide drift damage, excessive vegetative competition or poor design, including species not adapted to the site and too close spacing.

Renovation should not be initiated without an adequate inventory and evaluation of the existing windbreak/shelterbelt.

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

For Field Windbreaks

- If trees are spaced closer than 10-12 feet and are in otherwise good condition, consider thinning the windbreak by removing every other tree.
- If an existing single row windbreak has deteriorated beyond renovation, consider temporarily leaving the existing row and
 - 1) On an east-west windbreak plant a new row to the north and thin the existing row.
 - 2) On a north-south windbreak plant a new row to the east and thin the existing row.

These actions will help protect the new row from desiccating summer winds and provide additional soil moisture through snow melt without piling drifting snow on the new planting. The old row should be removed after the new row is well established and performing the desired purpose.

For Farmstead Shelterbelts

- Make every effort to save existing dense conifers.
- Consider removing any row of deciduous trees if it may crowd or suppress an adjacent conifer row.

For All Plantings

- Consider medium to larger sized planting stock. Older planting stock may provide an advantage in survival rates and functioning more quickly.
- Consider shade tolerant species when replanting within or adjacent to an existing row.

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.

Guidance for diagnosing and correcting windbreak problems is to be found in Iowa Woodland Technical Note # 20 "Windbreak Renovation" which is published jointly by the USDA Natural Resources Conservation Service, University of Nebraska Extension Service, USDA Forest Service, North Dakota State University, and the Nebraska Forest Service. It is also available at <http://www.unl.edu/nac/brochures/ec1777/ec1777.pdf>

OPERATION AND MAINTENANCE

The following actions shall be carried out to ensure 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):

- Replacement of dead trees or shrubs in new plantings or rows will be continued until the barrier's function is restored.
- Competitive vegetation will be controlled when it inhibits the renewed growth and vigor of the windbreak or shelterbelt.
- Supplemental water will be provided as needed.
- 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, damage from livestock and wildlife and from herbicide drift.
- Additional thinning, pruning, or coppicing management may be needed in the future to maintain function.
- Periodic applications of nutrients may be needed to maintain plant vigor.
- If the original spacing of a windbreak/shelterbelt was too close and after 20 years the trees have filled up the growing space, thinning will be necessary.

- Damaging pests will be monitored and controlled.

REFERENCES

Tree Planting: Establishment and Care, Iowa State University Extension, PM 1677, Reviewed and Reprinted March 2004.

Farmstead Windbreaks: Establishment, Care and Maintenance, Iowa State University Extension, PM 1717, Revised February, 2005.