

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
WINDBREAK/SHELTERBELT RENOVATION

(Acre)

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.

PURPOSE

Restoring or enhancing the original planned 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. If extending the length of an existing windbreak, refer to Indiana (IN) Field Office Technical Guide (FOTG) standard Windbreak/Shelterbelt Establishment (380).

CRITERIA

General Criteria Applicable to All Purposes

Plans and application of windbreak/shelterbelt renovation will comply with all applicable federal, state, and local laws and regulations.

The species, location, layout and density of windbreak/shelterbelt renovation will accomplish the purpose and intended function.

Remove all dead and dying trees or other debris that will interfere with windbreak/shelterbelt renovation. If the debris is to be burned, it must be piled far enough away

from the planting to prevent damage to existing trees. All burning must comply with all applicable regulations.

Plans and application of windbreak/shelterbelt renovation will follow IN FOTG Standard (380) Windbreak/Shelterbelt Establishment to prevent unwanted snowdrift and accumulation on roadways, rights of way, and structures.

Woody plants will be established without compromising the integrity of:

1. Property Lines
2. Fences
3. Utilities
4. Roads
5. Legal Drains
6. Other Easement Areas or Right of Ways

Where a right-of-way easement exists, written permission from the appropriate entity will be needed.

Trees or shrubs will be planted a minimum of 8 feet from the property line or the distance of the mature tree drip line, whichever is greater. Trees will not be planted closer than stated unless all involved landowners agree, in writing.

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.

All plantings will follow applicable criteria found in IN FOTG Forestry Technical Note: Tree & Shrub Establishment.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service State Office, or download it from the electronic Field Office Technical Guide for your state.

Species will be adapted to the soils, climate and site conditions. Adapted species can be found at the NRCS Soil Data Mart or Web Soil Survey by generating the Windbreak and Environmental Plantings reports. This report will also show 20 year average height by species.

Native plant species will be used whenever possible. Known invasive species will not be used.

Additional Criteria to Restore Original Planned Windbreak/Shelterbelt Functions

The planned configuration for renovation will be in accordance with Table 1.

Table. 1 Plant Spacing

Within Rows	Spacing (ft.)
Shrubs	3-8
Narrow Crowned Trees (Cedar and columnar varieties)	6-10
Normal Crowned Trees	12-16
Between Rows	Spacing (ft.)
Shrub Rows	6-8
Tree Rows	12-16
Tree/Shrub Rows	8-16
Twin Row High Density	4-12

Thinning and Pruning

To reduce plant competition or alter the density of the planting, individual trees or shrubs will be identified for thinning or coppicing as applicable.

Thinning and pruning, when used to alter species composition or density, will accomplish the purpose and intended function of the windbreak.

To improve growth and vigor of trees and shrubs, competing vegetation will be controlled mechanically or using chemicals.

Reinforcement Plantings

Reinforcement plantings are used to establish additional tree and/or shrubs to allow a windbreak or shelterbelt to perform the intended purpose.

To improve windbreak or shelterbelt density, individual trees or shrubs or additional rows

of trees or shrubs will be added as necessary adjacent to or within an existing windbreak or shelterbelt.

CONSIDERATIONS

Root Pruning

Root pruning (when trees are dormant) may be needed to prevent crop yield reduction adjacent to the windbreak. Root pruning may be used to prevent competition from adjacent trees when supplemental or enlargement plantings are made.

Root plow at the drip line or further from the trees. Cultivation over the root plow furrow is necessary to prevent suckering from the severed roots.

Root plow to a depth of 18 to 24 inches. This will normally require two trips over the furrow, plowing 9 to 12 inches with each pass. Repeat root pruning at intervals of 5 to 10 years.

PLANS AND SPECIFICATIONS

Plans and specifications for windbreak renovation will be prepared for each site in accordance with the criteria for this practice.

If thinning is used to regulate plant density, the plan will include the location of plants by species designated for removal and marking plants that need removal.

When planting of woody vegetation is used, the plan will include: planting dates and methods, the number of plants needed by species, and the planting location.

OPERATION AND MAINTENANCE

Replacement of dead trees or shrubs in new plantings will be continued until the windbreak/shelterbelt function is restored.

For planted species control weed competition during establishment (3 years). Competing weeds, brush, and vines can adversely affect survival, form and rate of tree growth.

Additional years of weed control may be needed in some instances e.g. to control johnsongrass, quackgrass, or other hard to control weed species.

Water planted seedlings, as needed, during first growing season.

Use fence, if necessary, to protect the windbreak from excessive livestock browsing and trampling damage (Refer to IN FOTG Standards (472) Use Exclusion and (382) Fence.

Protect woody plants from disease, rodents, deer, and insects using approved pesticides, repellents, tree shelters, hunting, fencing, or other appropriate methods.

Windbreak trees and shrubs must be protected from barnyard and feedlot runoff water.

Protect trees and shrubs from pesticide drift and from fire.

REFERENCES

Silvics of North America, Volume 1, Conifers. USDA, Forest Service, Agriculture Handbook 654, December 1990.

Silvics of North America, Volume 2, Hardwoods. USDA, Forest Service, Agriculture Handbook 654, December 1990.

Benefits Associated with Feedlots and Livestock Windbreaks. MNTC Technical Note Series No. 190-LI-1. June 1983, USDA-NRCS.

Enhancing the Wildlife Values Associated with Windbreaks. MNTC Technical Note: Series No. 190-LI-4 arch 1984, USDA-NRCS.

American Standard for Nursery Stock. ANSI Z60.1-1973, American Association of Nurserymen,

Right Tree-Right Place, White Pine and Salt Tolerance, Purdue University, Forestry and Natural Resources, FNR-FAQ-10-W

Roadside De-Icing Salts and Ornamental Plants, Purdue University, Department of Horticulture, HO-142-W

Urban and Community Forestry, A Guide for the Northeast and Midwest United States, U.S. Forest Service, Northeastern Area, State and Private Forestry

Forestry Handbook, Society of American Foresters, 2nd Edition, 1984

How Windbreaks Work, University of Nebraska, Extension 91-1763-B, 1991

Managing Existing Fencerows to Improve Their Effectiveness as Windbreaks USDA, NRCS, Indianapolis, Indiana, April 28, 1989