

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Hedgerow Planting

(Feet)

Code 422

DEFINITION

Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.

PURPOSES

Providing at least one of the following conservation functions:

- Food, cover and corridors for terrestrial wildlife
- Food and cover for aquatic organisms that live in watercourses with bank-full width less than 5 feet
- To intercept airborne particulate matter
- To intercept chemical drift and odor movement
- To increase carbon storage in biomass and soils
- Living fences
- Boundary delineation
- Contour guidelines
- Screens and barriers to noise and dust
- Improvement of landscape appearance

CONDITIONS WHERE PRACTICE APPLIES

This practice applies wherever it shall accomplish at least one of the purposes stated above.

CRITERIA

General Criteria Applicable to All Purposes

Plans and application of hedgerow planting shall comply with all applicable federal, state, and local laws and regulations.

Hedgerows shall be established using woody plants, and/or perennial bunch grasses producing erect stems attaining average heights of at least three (3) feet persisting over winter.

Woody plants shall 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 will be needed.

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

Where subsurface drains (tile lines) cross through a tree/shrub planting, and where these drains will remain functional, sealed conduit shall be installed through the planting and extend a minimum of 50 feet on either side of the planting or trees/shrubs shall not be planted within 50 feet on either side of the tile line.

The species, type of plant material, location, layout and density of the planting shall accomplish the intended purpose and function.

Species shall be adapted to the soils, climate and site conditions. Adapted species are listed at the Indiana (IN) Natural Resources Conservation Service (NRCS), Electronic Field Office Technical Guide (eFOTG), Section II, or at the NRCS Soils Data Mart under the report "Windbreaks and Environmental Plantings."

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.

Native plant species shall be used whenever possible. Known non-native invasive species shall not be used.

Woody vegetation shall be established following guidelines from the IN NRCS eFOTG Standard (612) Tree/Shrub Establishment concerning site preparation, planting dates, planting stock size, and planting and storage guidelines for woody stock.

The practice shall be protected from livestock grazing and trampling to the extent necessary to ensure performance for the intended purposes.

All grazing by livestock shall be part of an approved grazing management plan.

All seeding rates shall be based upon the IN NRCS Upland Wildlife Habitat Management Seeding Mixture Calculator using the wildlife rate or the erosive rate when appropriate.

All vegetation established from seed shall follow General Criteria from IN NRCS eFOTG Standard (327) Conservation Cover.

Seeding Dates

Species/Mix	IN Seeding Dates	Dormant Seeding Dates
Canada or Virginia Wildrye	3/1-5/15 or 8/1-9/15	12/1-3/1
Legumes	3/1-5/15 or 8/1-9/15	12/1-3/1
Warm season grasses	4/1-6/15	12/1-4/1
Forbs	4/1-6/15	12/1-4/1

**Increase seeding rates by 25% dormant seeding. Broadcasting of warm season grasses should only be done into a prepared seedbed with protection from erosion as a consideration.

Additional Criteria to provide food, cover and corridors for terrestrial wildlife

Selected plant species shall provide cover and/or food to support the targeted wildlife species.

Cover should not be disturbed during the primary grassland nesting period April 1 – August 1, unless used to improve habitat quality. Mowing may be needed during the establishment period, but should not be used after establishment.

For Wildlife Food and Cover

The minimum established width shall be 15 feet using at least two (2) species of grass from Table 1 (Note: if Switchgrass is used it shall not comprise more than 10% of the seed mix) or shrub species selected from the IN NRCS eFOTG Standard (645) Upland Wildlife Habitat Management – use Table 2 for shrub spacing.

Table 1. Stiff Stemmed Grasses

Species	Soil Drainage ¹	Mature Height (feet)
Big Bluestem <i>Andropogon gerardii</i>	SPD-ED	3-9
Indiangrass <i>Sorghastrum nutans</i>	PD-ED	3-5
Switchgrass <i>Panicum virgatum</i>	VPD-WD	3-6
The following species may be added not to exceed 50% (alone or combined) of the seed mix		
Little Bluestem <i>Schizachyrium scoparium</i>	MWD-ED	2-3
Canada Wild Rye <i>Elymus canadensis</i>	MWD-ED	3-4
Virginia Wild Rye <i>Elymus virginicus</i>	PD-WD	2-3

¹VPD = Very Poorly Drained, PD = Poorly Drained
SPD = Somewhat Poorly Drained, MWD = Moderately
WD = Well Drained, ED = Excessively Drained

For Wildlife Corridors

The minimum established width shall be 50 feet. Species shall be selected from the IN NRCS eFOTG Standard (645) Upland Wildlife Habitat Management. Species shall be planted according to the plant spacing in Table 2.

Wildlife corridors shall be composed of one of the following:

1. Except where shrubland or thermal cover is a limiting factor, the corridor will consist of at least three (3) rows of shrubs, one row of a soft mast tree species, and one (1) row of a hard mast tree species.
2. When shrubland is a limiting habitat factor for the targeted species, a shrub-only corridor shall be created consisting of a minimum of five (5) rows of shrubs. The tallest species shall be placed in the center rows.

3. When thermal cover is a limiting habitat factor, a corridor shall be created consisting of at least one (1) row of a non-deciduous conifer species, one (1) row of hard mast tree species, and two (2) rows of shrubs.

Table. 2 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

Additional Criteria to provide food and cover for aquatic organisms that live in watercourses with bank-full width less than 5 feet

Establish permanent woody vegetation with a minimum width of 15 feet.

The species selected for plantings adjacent to small watercourses shall achieve sufficient height at maturity to shade the watercourse. For larger watercourses, e.g. streams and rivers consult IN NRCS eFOTG Standard (391) Riparian Forest Buffer.

Additional Criteria for boundary delineation

Plant one row of trees or shrubs or establish a 5-foot wide strip of stiff stemmed grasses (see Table 1.) to delineate field or property boundaries. Trees and shrubs shall be planted using plant spacing from Table 2.

Additional Criteria for contour guidelines

Hedgerows shall be aligned so they provide permanent contour markers supporting implementation of IN NRCS eFOTG Standards (330) Contour Farming and (585) Stripcropping. Refer to those conservation practices standards for alignment criteria.

Additional Criteria for screens and barriers to noise and dust

Screening hedgerows provide privacy, hide unsightly areas from view or reduce noise.

Hedgerows shall be located where they most completely obstruct a line of sight, offensive sound, or dust.

Selected plants shall attain a height and fullness sufficient to break the line of sight, or baffle sound and dust.

If only one (1) row is planted, use evergreen species to provide year round benefits.

Additional Criteria for improvement of landscape appearance

The hedgerow design shall meet the aesthetic objectives of the landowner.

Plants shall be selected based upon the landowner's preferences for color, texture, and growth habit.

CONSIDERATIONS

Consider obtaining technical assistance from a professional forester when the plantings include woody vegetation.

When wildlife is a primary concern, consider developing a management plan with assistance from a professional wildlife biologist.

Consider adding native wildflowers to hedgerows for aesthetics and wildlife diversity. For species and seeding rates refer to IN NRCS eFOTG Standards (643) Restoration and Management of Declining Habitats or (645) Upland Wildlife Habitat Management.

Consider using dense and/or thorny plant materials to form thickets for songbirds to nest and as a refuge to escape predators.

Consider adding nest boxes for cavity nesting birds.

Consider planting plugs and/or container stock for herbaceous plants for potentially quicker establishment.

Consider leaving a maintenance strip (greater than eight (8) feet) on the hedgerows adjacent to cropland.

Consider using a support stake when planting either container trees or balled and burlapped stock.

Consider using plant species tolerant of salt spray near roads and highways that are deiced in the winter with salt. See the NRCS Plant Data Center web site for appropriate species.

Consider the effect of drifting snow when planning hedgerows around roads, farmsteads, and other areas where snow deposition could create a problem.

When planting woody vegetation, consider using locally adapted species from no more than 200 miles north or south of the planting site.

PLANS AND SPECIFICATIONS

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

The plan shall include:

- Planting dates
- Site preparation and weed control methods
- Designed plant spacing and/or seeding rates by species, and type of plant materials
- Planting methods

OPERATION AND MAINTENANCE

Supplemental planting may be required when survival is too low to produce a continuous hedgerow.

Vegetation shall be protected from unwanted fire and grazing.

Pests shall be monitored and controlled.

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

Renovation activities shall be scheduled to prevent disturbance during the wildlife-nesting season.

Where food and cover for wildlife is one of the purposes, management practices and activities are not to disturb cover during the primary grassland nesting period March 1 – July 15. Exceptions may be made to maintain the health of the plant

community. Mowing may be needed during the establishment period.

To establish woody vegetation, control weed competition during establishment (three (3) years). Competing weeds, brush, and vines can adversely affect survival, form and rate of woody plant 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.

REFERENCES

- National Biology Handbook*, Part 614.4, "Conservation Corridor Planning at the Landscape Level". Natural Resources Conservation Service, August 1999.
- 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