NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

HEDGEROW PLANTING
(Feet)
CODE 422

DEFINITION

Establishment of dense vegetation composed of shrubs and/or trees in a linear design in, across, or around a field to achieve a natural resource conservation purpose.

PURPOSE

To provide 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 reduce 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 will accomplish at least one of the purposes stated above.

CRITERIA

General Criteria Applicable to All Purposes

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

Plants selected must be suited and adapted to the soils, climate and conservation purpose.

No plant listed by the state as a noxious weed shall be established in a hedgerow.

The practice shall be protected from livestock grazing and trampling to the extent necessary to ensure that it will perform the intended purpose(s).

Competing vegetation shall be controlled until the hedgerow becomes established. Control shall continue beyond the establishment period, if necessary.

All planned work shall comply with federal, state and local laws and regulations.

Additional Criteria for Wildlife Food, Cover and Corridors

Establish at least two species of native vegetation. Herbaceous vegetation will be included in plantings for ground-nesting birds. Wider widths shall be used to reduce nest predation. At least 25% of the species selected will be evergreen to provide year-around cover. A variety of fruit and nut producing trees and shrubs will be used.

Selected plants shall provide cover and/or food to support the landowner's wildlife objectives. Minimum hedgerow width, at maturity, shall be 25 feet and shall include 2 or more rows of woody plants.

In plantings adjacent to small watercourses, the

plantings shall be site-adapted, large enough at maturity and installed close enough to shade the watercourse.

Additional Criteria for Living Fences

Selected plants shall attain a size adequate to create a barrier to contain livestock or humans, as needed. Species that are thorny or spiny should predominate the planting.

If the purpose is to contain livestock, selected plants shall not be poisonous or hazardous to the animals.

Additional Criteria for Boundary Delineation

Hedgerows shall be aligned along boundaries of fields, or forestlands to differentiate land management units.

Additional Criteria for Contour Guidelines

Align the grade of the hedgerow as closely as possible to the contour so they provide permanent contour markers supporting implementation of Contour Farming (330) or Stripcropping (585) and for enhanced erosion reduction. Refer to those conservation practice standards for alignment criteria.

Additional Criteria for Screens and Noise Barriers

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 or offensive sound.

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

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.

Additional Criteria for Reducing Particulate Matter Movement

The hedgerow will be oriented as close to perpendicular to the prevailing wind direction as possible.
Hedgerow density on the upwind side shall be at least 50% at maturity.

Hedgerow density adjacent to the particulate source shall be at least 65% at maturity.

Additional Criteria to Reduce Odor Movement and/or Chemical Drift

Orientation of the hedgerow shall be as close to perpendicular to the prevailing wind direction during the period of concern, and between the source of the odor or chemical drift and the sensitive and the sensitive areas.

Hedgerows shall be located upwind of the odor producing area and the chemical application area.

Tree and shrub species used shall have foliar and structural characteristics that optimize interception, adsorption and absorption of airborne chemicals or odors.

CONSIDERATIONS

General

Planting a hedgerow larger than the minimum length and width will increase the amount of carbon stored in the soil and biomass.

Hedgerows can be planned in combination with other practices to develop complete conservation systems that enhance landscape aesthetics, reduce soil erosion, improve

sediment trapping, improve water quality and provide wildlife habitat.

Hedgerows following land contours create meandering lines on the landscape, produce a natural appearance and increase the availability of "edge" wildlife habitats.

Hedgerows containing a mixture of native shrubs and small trees provide greatest environmental benefits.

Use of bareroot and containerized seedlings will accelerate hedgerow development.

Consider the amount of shading a hedgerow will provide at maturity. Shading may impact growth of adjacent plants, microclimate and aesthetics.

Limiting renovation events to one-third of a hedgerow's length or width will prevent sudden elimination of the practice's wildlife habitat function.

Periodic root pruning can reduce nutrient and water robbing from adjacent cropland.

Consider avoiding the use of plants that spread by root suckers as hedgerow may expand beyond the desired treatment area.

Wildlife Food, Cover and Corridors

Hedgerows can provide travel lanes, or corridors that allow wildlife to move safely across a landscape.

Generally, wider corridors accommodate more wildlife use.

Linking fragmented habitats may increase wildlife use of an area.

In grassland ecosystems, hedgerows may adversely affect area-sensitive nesting birds by fragmenting habitat patches and increasing the risk of predation. Impacts from nest predators such as the cow bird may out weigh any benefits of the hedgerow.

Hedgerows can complement the availability of naturally occurring wildlife foods.

Hedgerows can provide wildlife with cover for feeding, loafing, nesting and caring for young.

Dense or thorny shrub thickets provide songbirds with important nesting sites and a refuge to escape predators.

Establishment of evergreen plants provides year-round concealment and thermal cover for wildlife.

Establishment of herbaceous vegetation along the edges of a hedgerow can further enhance the habitat functions of a hedgerow.

Installation of artificial nest boxes with predator guards can encourage cavity-nesting birds and small mammals such as bats to utilize a hedgerow. Interplant open areas within hedgerows with native vine, shrub or tree species that provide food and cover for wildlife. Add herbaceous strips to benefit ground-nesting birds, and mow periodically to prevent woody plant encroachment. Avoid mowing during the primary nesting season.

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Living Fences

Thorny shrubs and trees can improve a living fence's barrier effect.

Screens and Noise Barriers

From eye-level, hedgerows reduce the line-of-sight across open areas, concealing objects behind them from view.

Consider the design from viewpoints on both sides of the screen.

Locate noise barriers as close to the source of noise as possible.

Combination of shrubs and/or trees can create more effective screens than single species plantings.

Evergreens provide foliage that can maintain a screen's year-round effectiveness.

Improving Landscape Appearance

Consider plants' seasonal display of colors on bark, twigs, foliage, flowers and fruit.

Consider plants' growth habits (outline, height and width).

Water Quantity

This practice will benefit surface water supplies through sustained flows from slow release in the accumulated organic matter. Percolation may benefit underlying groundwater resources.

Other planning considerations for water quantity are:

- The effect on water budgets, especially on volumes, rates of runoff, infiltration, evaporation and transpiration
- The effect of vegetation on soil moisture.

Water Quality

Water quality benefits may arise from the trapping of sediment in the runoff of surface water through the hedgerow and the accumulated organic matter beneath the shrubs. Where fertilization is used in the establishment and maintenance of the hedgerow, apply only the amount that is recommended to reduce nutrient runoff into streams.

Other planning considerations for water quality are:

- The effects on erosion and the movement of sediment, soluble and sediment-attached substances carried by runoff
- The effects of hedgerow vegetation arresting and filtering sediment movement as well as trapping sediment-attached substances from surface water.
- The effects on the movement of dissolved substances to ground water.
- The water cooling effects resulting from increased shade on small watercourses.
- Effects on infiltration and assimilation of plant nutrients. A hedgerow will increase surface water infiltration by improving soil structure around its root zone. However, evapotranspiration may reduce groundwater recharge benefits.

Incidental Trapping of Snow or Soil

Although not a primary purpose, hedgerows may incidentally trap wind blown snow or soil.

Consider installing hedgerows on alignments that prevent trapping and accumulation of snow and sand on public roads.

Refer to the Windbreak/Shelterbelt Establishment (380) standard for criteria when snow or sand trapping is a primary conservation purpose.

PLANS AND SPECIFICATIONS

Plans and specifications for hedgerows shall be in keeping with this standard and will describe the requirements for applying this practice to achieve its intended purpose.

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

Specifications shall include, but are not limited to the following:

- Plan map showing the location of the practice.
- A sketch map showing the planting patterns to be used.

- Plant species to be used and the number of each to be planted.
- Land preparation to be preformed.
- Liming and fertilization requirements.
- Planting rates, spacing, and dates.
- Control of competition needed for establishment.

OPERATION AND MAINTENANCE

The client will receive a plan or specifications describing the following management and corrective actions that are required for the successful management of the hedgerow.

Competing vegetation will be controlled until the woody plants are established.

Vegetation shall be maintained to ensure continued control of odor movement and chemical drift.

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

Supplemental watering may be desirable to ensure adequate survival of plantings.

Prevent uncontrolled spreading by using mechanical methods or herbicides to destroy seedlings.

Vegetation shall be protected from unwanted fire and grazing throughout its life span.

Damaging pests shall be monitored and controlled.

Noxious weeds and/or exotic invasive plants will be controlled as needed.

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

When renovation of the hedgerow is needed, use fire, herbicides, or mechanical means to set back the vegetation to an earlier stage.

To preserve wildlife, renovate only one-third the length of the hedgerow at a time allowing re-growth before proceeding to the next section. Renovation activities shall be scheduled to prevent disturbance during the wildlife nesting season.

REFERENCES

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