

**NATURAL RESOURCES CONSERVATION SERVICE  
PACIFIC ISLANDS AREA**

**CONSERVATION PRACTICE STANDARD**

**HEDGEROW PLANTING**

(Ac.)  
CODE 422

**DEFINITION**

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

**PURPOSE**

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 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 plants on the state or federal noxious weed lists shall be planted.*

*Information about plant species which may be used to establish hedgerow plantings is included in various practice tables in the Pacific Islands Vegetative Guide available online @: [ftp://ftp-fc.sc.egov.usda.gov/HI/pub/technotes/vegetative/veg\\_7\\_pi\\_vegetative\\_guide/](ftp://ftp-fc.sc.egov.usda.gov/HI/pub/technotes/vegetative/veg_7_pi_vegetative_guide/). The Vegetative Guide also includes information about site preparation and planting methods.*

- *Suitable tree and shrub species: Tree/Shrub Establishment (612) and Windbreak/Shelterbelt Establishment (380)*
- *Suitable perennial species: Herbaceous Wind Barrier (603) and Vegetative Barrier (601)*

*Information about suitable species for riparian areas is available in the Riparian Restoration Plant Database, a management tool for habitat restoration in Hawaii. The program is available online @:*

[http://www.ctahr.hawaii.edu/rnre/Riparian\\_Restoration\\_Plant\\_Database.asp](http://www.ctahr.hawaii.edu/rnre/Riparian_Restoration_Plant_Database.asp).

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, if practicable.

Selected plants shall provide cover and/or food to support the landowner's wildlife objectives.

*The following two practice tables in the Pacific Islands Vegetative Guide provides information which may be useful for selecting plant species for wildlife purposes:*

- *Upland Wildlife Habitat Management (645): Typical Vegetation Used for Food, Nesting Cover, and Escape Cover*
- *Wetland Wildlife Habitat Management (644): Plant Species Preferred by Water and Migratory Birds*

*The Vegetative Guide is available online @:*  
[ftp://ftp-fc.sc.egov.usda.gov/HI/pub/technotes/vegetative/veg\\_7\\_pi\\_vegetative\\_guide/](ftp://ftp-fc.sc.egov.usda.gov/HI/pub/technotes/vegetative/veg_7_pi_vegetative_guide/).

Minimum hedgerow width, at maturity, shall be 15 feet. This may necessitate the establishment of more than one row of 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.

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**

Hedgerows shall be aligned so they provide permanent contour markers supporting implementation of Contour Farming (330), Stripcropping (585), or *Vegetative Barriers* (601). 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 areas.

Hedgerows shall be located downwind 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.

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.

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 to utilize a hedgerow.

### **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 Quality and Quantity**

Water quality benefits may arise from:

- Arresting sediment movement and trapping sediment-attached substances.
- Infiltration and assimilation of plant nutrients.
- Water cooling effects resulting from increased shade on small watercourses.

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 Soil**

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

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

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

## **PLANS AND SPECIFICATIONS**

Plans and specifications for this practice shall be prepared for each site.

*The Conservation Practice Jobsheet (Code 422) shall be used to record the plans and specifications (job specifications) for the installation, operation and maintenance of the practice on the client's treatment unit.*

## **OPERATION AND MAINTENANCE**

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

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

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

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.

## **REFERENCES**

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