NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FIELD BORDER

(Ac.)

CODE 386

DEFINITION

A strip of permanent vegetation established at the edge or around the perimeter of a field.

PURPOSE

This practice may be applied to accomplish one or more of the following:

- Reduce erosion from wind and water
- Protect soil and water quality
- Manage pest populations
- Provide wildlife food and cover and pollinator habitat
- Increase carbon storage
- Improve air quality

CONDITIONS WHERE PRACTICE APPLIES

This practice is applied around the perimeter of fields. Its use can support or connect other buffer practices within and between fields. This practice may also apply to recreation land or other land uses where agronomic crops including forages are grown.

CRITERIA

General Criteria Applicable to All Purposes

Field borders shall be established around the field edges to the extent needed to meet the resource needs and producer objectives. Minimum field border widths shall be based on local design criteria specific to the purpose or purposes for installing the practice.

The field borders shall be established to adapted species of permanent grass, legumes and/or shrubs that accomplish the design objective and do not function as host for diseases of the field crop.

Plants selected for field borders will have the physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area.

Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.

Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.

Minimum field border widths shall be based on the purpose for which the practice is being installed. Field border width shall be a minimum of 20 feet. Widths will be increased when appropriate to provide ample turning space for larger farm equipment, compensate for field irregularities, or to facilitate row patterns.

A field border planned for a combination of shrubs and herbaceous vegetation shall have the shrub component account for at least 10 feet of the 20-foot minimum width.

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 Field Office Technical Guide.

Associated Practices: Forage and Biomass Planting (512), Wildlife Upland Habitat Management (645), or Critical Area Planting (342)

Additional Criteria to Reduce Erosion from Wind and Water

Field border establishment, in conjunction with other practices, will be timed so that the soil will be adequately protected during the critical erosion period(s).

Establish stiff-stemmed, upright grasses, grass/legumes or forbs to trap wind- or water-borne soil particles.

The amount of surface and/or canopy cover needed from the field border shall be determined using current approved water and wind erosion prediction technology. Calculations shall account for the effects of other practices in the management system.

Wind Erosion Reduction. Locate borders to provide a stable area on the windward edge of the field as determined by prevailing wind direction data.

Minimum height of grass or forbs shall be one foot during the critical erosion period.

Water Erosion Reduction. Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.

Orient plant rows as closely as possible to perpendicular to sheet flow direction.

Additional Criteria to Protect Soil and Water Quality

Do not burn the field border if the main goal of the field border is to protect soil or water quality.

Reducing Runoff and Increasing Infiltration. Locate borders around the perimeter of the field, or as a minimum, install borders to eliminate sloping end rows, headlands and other areas where concentrated water flows will enter or exit the field.

Water Quality – Adsorbed, Dissolved and Suspended Contaminants. As a minimum, locate field borders along the edge(s) of the field where runoff enters or leaves the field. The minimum width for this purpose shall be 30 feet and have a vegetation stem density/retardance of moderate to high (e.g. equivalent to a good stand of wheat).

Design border widths to comply with all applicable State and local regulations regarding manure and chemical application setbacks. Chemical or manure applications shall not occur within the following setback (non-application) buffer distances of areas containing the field border:

- 30 feet for areas adjacent to property lines
- 50 feet for areas adjacent to public roads
- 300 feet for areas adjacent to dwellings and public use areas.

Reducing Soil Compaction from Equipment Parking and Traffic. Border widths will be designed to accommodate equipment turning, parking, loading/unloading equipment, grain harvest operations, etc.

Additional Criteria to Manage Pest Populations

Provide a Harbor for Beneficial organisms (e.g. insects, mites, etc.). Include appropriate plants that attract beneficial organisms that prey on target pests.

Mowing, harvesting, pesticide applications and other disturbance activities will be scheduled to accommodate life cycle requirements of the beneficial organisms.

Provide a Habitat to Cause Pests to Congregate. Select plants for the field border that attract pests (e.g. alfalfa strips planted to lure lygus bugs away from a cotton crop).

Additional Criteria to Provide Wildlife Food and Cover and Pollinator Habitat

Field border width shall be a minimum of 20 feet for shrub only borders. When nesting

habitat for ground nesting birds is a primary objective, mature herbaceous only borders will be a minimum of 45 feet.

Establish plant species that provide wildlife food and cover for the target wildlife species and/or pollinator habitat.

Plants that provide wildlife food and cover shall be used. **Table 1** provides a partial list of plant species suitable for planting to meet these habitat objectives.

Natural regeneration (succession) through chemical eradication of introduced grasses such as fescue and bermudagrass shall be restricted to non-erosive areas, generally slopes of less than 5 percent.

Cropland borders of less than 2 percent slopes may be allowed to establish through natural regeneration with no other required treatment.

Cropland borders from 2 to 5 percent slopes may be allowed to establish through natural regeneration after establishment of a temporary cover (wheat, rye, sudex, etc.).

Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species.

Vegetative successional state shall be maintained to accommodate target wildlife species requirements.

When wildlife and/or pollinators are a concern, a lower percent groundcover than would be needed if protecting soil and water quality was the only goal as acceptable as long as the soil resource concern is also adequately addressed (i.e. no excessive soil loss). This may be achieved by simply increasing the field border width.

Additional Criteria to Increase Carbon Storage

Establish plant species that will produce adequate above- and below-ground biomass for the site (i.e. a positive soil conditioning index).

Maximize the width and length of the herbaceous border to fit the site and increase total biomass production.

Do not burn if the main goal of the field border is carbon storage.

Do not disturb the roots of the established vegetation with tillage.

Additional Criteria to Improve Air Quality

Establish plant species with morphological characteristics that optimize interception and adhesion of airborne particulates. Select plants with persistent roots and residue that stabilize soil aggregates and capture airborne soil particles.

Establish species resistant to damage from equipment traffic.

CONSIDERATIONS

Consider planting field borders around the entire field, not just on the field edges where water enters or leaves the field, for maximizing multiple resource protection.

Establishing a narrow strip of stiff-stemmed upright grass at the crop/field border interface can increase soil particle trapping efficiency of the field border.

Native plants are best suited for wildlife and pollinator habitat enhancement and provide other ecological benefits where adapted to site conditions and when consistent with producer objectives.

Include native plants that provide diverse pollen and nectar sources to encourage local pollinator populations.

Use field borders as corridors to connect existing or planned habitat blocks.

Prescribed burning, strip disking, or selective herbicide applications are management tools that can be used to maintain suitable habitat for specifically desired wildlife species.

Overseed the field border with legumes for increased plant diversity, soil quality, pollinators, and wildlife benefits.

Waterbars or berms may be needed to breakup or redirect concentrated water flow within the borders.

In selecting plant species to establish in the field border, among other items, consider the plant's tolerance to:

- Sediment deposition and chemicals planned for application
- Drought
- Equipment traffic.

Design border widths to match the required field application setback widths for easier management (i.e. land-use and management changes occur in the same location).

Establish plant species that will have the desired visual effects and that will not interfere with field operations or field border maintenance.

Consider the amount of shading that the field border or portions of the field border may experience and select species for those locations accordingly.

The use of native perennial plant species as opposed to annual species provides a longer period of resource protection.

Consider installing a contour buffer system, No Till practice or other conservation practices on adjacent upland areas to reduce surface runoff and excessive sedimentation of field borders.

Herbaceous field borders that can provide refuge habitat for beneficial insects should contain a mixture of plant species that will provide blooming from spring through fall. Some possible plants to include in a planting mixture are:

Spring Bloomers	Yarrow, Clovers, Fleabane
Summer Bloomers	Queen Anne's Lace, Maximilian Sunflower, Coreopsis, Coneflowers
Fall Bloomers	Asters

For shrub borders, select multiple species to increase diversity and extend food availability.

Field borders planned for the purpose of a wildlife corridor should be as wide as possible. Refer to specific conservation program limits when necessary.

Complete Exhibit 3 of the National Planning Procedures Handbook and any other appropriate environmental evaluation information needed to meet the requirements of the National Environmental Policy Act.

TABLE 1 lists some plant species and mixtures suitable for the establishment of field borders. This table does not reflect all species or mixtures that may be suitable for field borders.

TABLE 1:

Plant Mixture	Wildlife Value
Natural Regeneration	High
Bermudagrass (Mono)	Low
Orchardgrass Timothy Kobe or Korean Lespedeza	High
Orchardgrass White Clover	Medium
Switchgrass	Medium
Big Bluestem Indiangrass Illinois Bundleflower Partridge Pea	High
Fescue White Clover	Low
Switchgrass Partridge Pea	Medium
Switchgrass Hairy Vetch	Medium
Big Bluestem Indiangrass Little Bluestem Illinois Bundleflower	High
Maximilian Sunflower	High

TABLE 1 (Continued):

Plant Mixture	Wildlife Value
Eastern Gamagrass Big Bluestem Indiangrass	High
Kobe or Korean Lespedeza	Medium
Big Bluestem Indiangrass Little Bluestem Sideoats Grama Switchgrass Hard Seed Forb or Legume	High
Shrubs • Crabapple • Washington Hawthorn • Silky Dogwood (Moist Bottoms) • Indigo Bush • Elderberry (Moist Bottoms) • Wild Plum • Chickasaw Plum • Shrub Lespedeza • Fragrant Sumac • Gray Dogwood	High

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each field or treatment unit according to the Criteria included in this Standard. Specifications shall describe the requirements for applying this practice to meet the intended purpose. Record practice specifications on the Field Border 386, Conservation Practice Job Sheet.

The following components shall be included for recording this specification:

- Field Border widths and lengths based on local design criteria.
- Field Border location(s) within the field(s) or farm boundary.
- Species to be used and the location and planting density of the species used.
- Site preparation requirements.
- Timing of planting and planting method.
- Liming or fertilizer requirements.
- Operation and maintenance requirements.

OPERATION AND MAINTENANCE

Field borders require careful management and maintenance for performance and longevity. The following O&M activities will be planned and applied as needed:

- Repair storm damage.
- Remove sediment from above or within the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species' survival.
- Shut off sprayers and raise tillage equipment to avoid damage to field borders.
- Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
- Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious weeds to sustain effectiveness of the border.
- Repair and reseed ephemeral gullies and rills that develop in the border.
- Minimally invasive tillage (e.g. paraplowing) may be performed in rare cases where compaction and vehicle traffic have degraded the field border function. The purpose of the tillage is strictly to decrease bulk density and increase infiltration rates so as to provide a better media for reestablishment of vegetation and field border function.

- Maintenance activities that result in disturbance of vegetation should not be conducted during the nesting season of grass nesting birds.

- Avoid vehicle traffic when soil moisture conditions are saturated.

- Maintain herbaceous vegetation so that it provides at least 80 percent ground cover throughout the year.

REFERENCES

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