

**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 at least 20 feet wide or wider if necessary to turn farm equipment.

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.

Refer to standards and specifications for Range Planting (550) and Pasture and Hayland Planting (512) for additional information on species selection.

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, dates, depths, fertility requirements, and planting methods will be consistent with information found within the Herbaceous Vegetation Design Procedures (550DP).

Seeding rates will be a minimum of 40 PLS/ft² unless the purpose and associated criteria require or allow for a different rate.

Ephemeral gullies and rills present in the planned border area will be shaped according to the Critical Area Planting (342) standard 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.

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

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service.

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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 or where high rates of water erosion are likely. Refer to Grassed Waterway (412) or Critical Area Planting (342) for additional information on species composition and seeding rates if severe sheet and rill, ephemeral or classic gully erosion is occurring.

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 on areas that are 5 percent or steeper, on flatter slopes if excessively long, headlands and other areas where concentrated water flows will enter or exit the field or where high rates of water erosion are likely.

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). Refer to Filter Strip (393) for additional information on species composition and seeding rates if field border will function as a filter strip.

Design border widths to comply with all applicable State and local regulations regarding manure and chemical application setbacks.

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

Establish plant species that provide wildlife food and cover for the target wildlife species and/or pollinator habitat. Forbs and/or legumes must comprise a minimum of 20% (by PLS/ft²) within seed mixtures to provide benefits to a wider array of wildlife species. Field Borders intended for specific wildlife species may require even higher forb/legume composition. Refer to the Field Border – Upland Bird Habitat Design Procedures (386DP) or the Upland Wildlife Habitat Management – Upland Game Bird Habitat Design Procedures (645DP) for additional information.

Information regarding plantings to provide pollinator habitat can be found in the Upland Wildlife Habitat Management (645) standard.

Minimum average field border width for the purpose of wildlife habitat is 30 feet with no portion less than 20 feet wide.

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. Refer to Early Successional Habitat Development/Management (647) for additional information.

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 is 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.

To meet the quality criteria requirements for wildlife habitat (food, water cover, etc.) in Section III of the FOTG, the planned system must provide a total rating of 0.5 or higher for the conservation treatment unit. Rating shall be recorded using the Cropland Habitat Evaluation Worksheet (NE-CPA-32). A species-specific habitat evaluation tool (i.e. Nebraska Conservation Planning Sheet 23 for Northern Bobwhite Quail) may also be used.

Refer to the Field Border – Upland Bird Habitat Design Procedures (386DP) for additional criteria to benefit quail and other upland game birds.

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.

Field borders provide may provide for hay production. Refer to Pasture and Hay Planting (512) and Forage Harvest Management (511) for additional guidance for this purpose.

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:

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- Sediment deposition and chemicals planned for application
- Drought in arid areas or where evapotranspiration can potentially exceed precipitation during the field border's active growing period(s).
- 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).

The use of field borders may provide for buffer zones needed to meet organic crop production criteria.

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.

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, Grass Seeding Job Sheet (NE-CPA-8), other appropriate job sheets, narrative statements in the conservation plan, or other acceptable documentation. 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.

REFERENCES

K. G. Renard, G. R. Foster, G. A. Weesies, K. D. K. McCool and D. C. Yoder. 1997. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE), Agricultural Handbook Number 703.

NRCS Conservation Practice Standard, [Critical Area Planting, Code 342](#)

NRCS Conservation Practice Standard, [Early Successional Habitat Development/Management, Code 647](#)

NRCS Conservation Practice Standard, [Field Border – Northern Bobwhite Quail Habitat Design Procedures, Code 386DP](#)

NRCS Conservation Practice Standard, [Filter Strip, Code 393](#)

NRCS Conservation Practice Standard, [Forage Harvest Management, Code 511](#)

NRCS Conservation Practice Standard, [Grassed Waterway, Code 412](#)

NRCS Conservation Practice Design Procedures, Range Planting – [Herbaceous Vegetation Design Procedures, Code 550DP](#)

NRCS Conservation Practice Standard, [Pasture and Hayland Planting, Code 512](#)

NRCS Conservation Practice Standard, [Range Planting, Code 550](#)

NRCS Conservation Practice Standard Design Procedure, [Upland Wildlife Habitat Management – Upland Game Bird Habitat Design Procedures, Code 645DP](#)

NRCS Cropland Habitat Evaluation Worksheet ([NE-CPA-32](#))

NRCS Nebraska Conservation Planning Sheet 22 – Northern Bobwhite Quail Habitat Evaluation Tool

Revised Universal Soil Loss Equation Version 2 (RUSLE2) website (checked May 2007): http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm.