

**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
- Increase carbon storage
- Improve air quality

**CONDITIONS WHERE PRACTICE APPLIES**

The practice is applied around the perimeter or edges of fields. Its use can support or connect other buffer practices within and between fields. The 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 30 feet. Additional width shall be added where the field border will be used for turning farm equipment. At a minimum, the border will be twice as wide as the widest equipment used.

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.

**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. Seed mixtures will be selected from Pasture and Hay Planting (Practice Code 512), Critical

Area Planting (Practice Code 342), or mixes available using erosion criteria contained in the Conservation Cover (Practice Code 327).

**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.

Where necessary practices such as Conservation Crop Rotation (Practice Code 328), Residue and Tillage Management, No-Till/Strip Till/Ridge Till (Practice Code 329), Residue and Tillage Management, Mulch Till (Practice Code 345), Residue and Tillage Management Ridge Till (Practice Code 346), Contour Farming (Practice Code 330), Contour Orchard and other Fruit Area (Practice Code 331) Contour Buffer Strips (Practice Code 332), and/or Strip Cropping (Practice Code 585) should be used in fields where Field Borders are planned.

#### **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 the purpose shall be 30 feet and have a vegetation stem density/retardance of moderate to high. Seed mixtures suitable for grassed waterways or vegetative filter strips should be used.

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, pollinators etc.).**

Include appropriate plants that attract beneficial organisms that prey on target pests. To benefit pollinators, seed or plant mixtures should include native flowering plants and include enough species that will provide flowers throughout the growing season. Species lists beneficial for pollinators can be found in Illinois Biology Technical Note 23 “Pollinator Biology and Habitat”.

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 as a trap crop where part of an Integrated Pest Management (IPM) strategy. Consult with IPM specialists at Land Grant Universities for specific recommendations. (e.g. alfalfa strips planted to lure lygus bugs away from a cotton crop).

#### **Additional Criteria to Provide Wildlife Food and Cover**

Establish plant species that provide wildlife food and cover for the target wildlife species. Select seed mixtures contained in the Conservation Cover (Practice Code 327).

Schedule mowing, burning, 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.

Where lower percent groundcover is desired for wildlife benefits, the established cover must adequately protect the soil from erosion.

#### **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 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 and across concentrated flow channels can increase soil particle trapping efficiency of the field border.

Native plants are best suited for wildlife 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 throughout the growing season to encourage local pollinator populations.

Use field borders as wildlife 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.

Over seed the field border with legumes/forbs when vegetation succession favors grass predominance for increased plant diversity, soil quality, 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 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).

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.

The following components shall be included for recording this specification:

- Field Border widths and lengths.
- 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.

Revised Universal Soil Loss Equation Version 2 (RUSLE2) website (checked May 2007): [http://fargo.nserl.purdue.edu/rusle2\\_dataweb/RUSLE2\\_Index.htm](http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm).

Enhancing Beneficial Insects with Native Plants  
<http://www.ipm.msu.edu/plants/home.htm>