

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

FIELD BORDER

(Ac.)
Code 386



Field border of switchgrass and shrubs bordering a cotton field.

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 – Resource Concern (SOIL EROSION - Sheet, rill, & wind erosion)
- Protect soil and water quality – Resource Concerns (SOIL QUALITY DEGRADATION – Compaction and WATER QUALITY DEGRADATION – Excess nutrients in surface and ground waters)
- Provide wildlife food and cover and pollinator or other beneficial organism habitat – Resource Concern (INADEQUATE HABITAT FOR FISH AND WILDLIFE –Habitat degradation)
- Increase carbon storage – Resource Concern (SOIL QUALITY DEGRADATION –Organic matter depletion)
- Improve air quality – Resource Concern (AIR QUALITY IMPACTS - Emissions of Particulate Matter - PM - and PM Precursors)

CONDITIONS WHERE PRACTICE APPLIES

This practice is applied around the inside perimeter of fields. Its use can support or connect other buffer practices within and between fields. This practice applies to cropland and grazingland.

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 electronic Field Office Technical Guide.

CRITERIA**General Criteria Applicable to All Purposes**

Resource needs and producer objectives will determine the size and location of field borders to be established on field edges. Unless specified, 20 feet is the minimum field border width to be used. Where large farm equipment is used, widths may be increased to 30 – 35 feet.

Any adapted native or introduced species of permanent grass, legumes, forbs, and/or shrubs that accomplish the design objective and do not function as host for diseases of the field crop can be used. See [Florida Plant List for Conservation Alternatives \[FOTG II \(G\)\]](#) for species that can be selected for this practice. Do not use any plant listed by the state as noxious or invasive species (see invasive species guidance in Section II of FOTG).

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.

Plant material, seedbed preparation, seeding rates, dates, depths, and planting methods will be consistent with approved local criteria and site conditions. Follow the appropriate planting guidelines in the following Florida NRCS conservation practice standards:

- Critical Area Planting, Code 342
- Forage and Biomass Planting, Code 512
- Upland Wildlife Habitat Management, Code 645
- Tree/Shrub Establishment, Code 612

Eliminate ephemeral gullies and rills present in the planned border area 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 sheet flow into the planned border area.

All federal, state and local laws, rules and regulations will be followed.

Impact to cultural resources, wetlands, and Federal and State protected species shall be evaluated and avoided or minimized to the extent practical during planning, design and implementation of this conservation practice in accordance with established National and Florida NRCS policy, General Manual (GM) Title 420-Part 401, Title 450-Part 401, and Title 190-Parts 410.22 and 410.26; National Planning Procedures Handbook (NPPH) FL Supplements to Parts 600.1 and 600.6; National Cultural Resources Procedures Handbook (NCRPH); and The National Environmental Compliance Handbook (NECH).

Additional Criteria to Reduce Erosion from Wind and Water

Time field border establishment, in conjunction with other practices, 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.

Determine the amount of surface and/or canopy cover needed from the field border using current approved water and wind erosion prediction technology. Soil erosion estimates 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 during critical erosion period(s). Minimum height of grass or forbs need to be at least 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.

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 is 30 feet and the field border planting needs to 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. See the following Florida NRCS conservation practice standards for minimum setback widths: [Nutrient Management, Code 590](#) and [Integrated Pest Management, Code 595](#).

Reducing Soil Compaction from Equipment Parking and Traffic. Design border widths to accommodate equipment turning, parking, loading/unloading equipment, grain harvest operations, etc.

Additional Criteria to Provide Wildlife Food and Cover and Pollinator or Other Beneficial Organism Habitat

Establish plants that provide wildlife food and cover for the target wildlife species. Minimally for this purpose, Field Borders need to be 30 feet wide. See Florida NRCS conservation practice guidance for [Upland Wildlife Management, Code 645](#), for additional guidance. For pollinator species see the following documents:

[Plant Materials Fact Sheet No. 3 – Planting Native Species for Flower Rich Pollinator Habitat.](#)

[Plant Materials Fact Sheet No. 4 – Developing Planting Mixtures for Pollinator Habitat.](#)

[Pollinator Species Planting Mixture Calculator Spreadsheet](#)

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. Vehicular traffic should be avoided in field borders established for this purpose.

For beneficial organisms (e.g., predatory and parasitic insects, spiders, insectivorous birds and bats, raptors, and terrestrial rodent predators) that prey on target pests, a diverse selection of plant species should be used. Species selection should be aimed at meeting dietary needs and nesting and cover requirements of the beneficial organism(s), at least during the critical periods when pests are targeted, and ideally year

Maintain the optimal successional state of vegetation to accommodate targeted 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 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.

Additional Criteria to Increase Carbon Storage

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

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

Do not burn if the main purpose 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.

Do not burn if the main goal of the field border is to improve air quality.

Establish species resistant to damage from equipment traffic.

CONSIDERATIONS**Applicable to All Purposes**

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

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 to increase soil particle trapping efficiency of the field border.

Field borders can serve as corridors to connect existing or planned habitat blocks. Use State-approved plant species that provide wildlife food and cover for the target wildlife species and/or pollinator habitat.

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. When enhancement of wildlife habitat is a purpose, plant species diversity should be encouraged. Plantings that result in multiple structural levels of vegetation will maximize wildlife use. Include native plants that provide diverse pollen and nectar sources to encourage local pollinator populations. Where possible, re-establish the native plant community for the site.

Prescribed burning, prescribed grazing, strip disking, or selective herbicide applications are management tools that can be used to maintain suitable habitat for specifically desired wildlife species, provided that such management activities do not compromise the purpose(s) of the practice.

To minimize wildlife mortality and habitat degradation, turn or drive machinery on field borders only when necessary, at low speed, and with implements fully raised. If extensive turning/traffic will be necessary on field border during the nesting season, mortality may be reduced by mowing the field border early to reduce attractiveness as a nesting site particularly if alternative nesting cover available.

Overseed the field border with forbs 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 field 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.

Additional Considerations for Organic Systems

Organic producers may have to submit plans and specifications to their certifying agent for approval prior to installation, as part of the organic producer's Organic System Plan.

Where genetic drift is a concern, use buffer vegetation to increase the distance between or create a barrier between the pollen producing crop and the crop that must be protected.

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(s). Record practice specifications on the Field Border Implementation Requirement. 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 re-seed 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 re-seed 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 the soil's bulk density and increase infiltration rates so as to provide a better media for reestablishment of vegetation and field border function.

- When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.

REFERENCES

Baumgartner, J. et. al. Biodiversity Conservation – An Organic Farmer’s Guide. 2005. Wild Farm Alliance. <http://www.wildfarmalliance.org>

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.

OMRI Organic Seeds Database. Organic Materials Review Institute. <http://www.omri.org/seeds>

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

Sources of Organic and Untreated Non-GMO Seeds. National Sustainable Agriculture Information Service. <http://attra.ncat.org/sorg/seeds.html>

USDA-AMS National Organic Program National List of Allowed and Prohibited Substances.
<http://www.ams.usda.gov/AMSV1.0/nop>

USDA-AMS National Organic Program Regulations, 7 CFR Part 205.
<http://www.ams.usda.gov/AMSV1.0/nop>