

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

FIELD BORDER

(Ac.)
Code 386



Field Border along edge of crop field.

DEFINITION

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

PURPOSES

- 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

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

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

Minimum field border widths shall be 20 feet. Where large farm equipment is used, widths may be increased to 30 – 35 feet.

The field borders will 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. Consult the Florida Plant List for Conservation Alternatives [FOTG II (G)] for species that can be selected for this practice.

Native plant species may be used.

Field borders will be established around the field edges to the extent needed to meet the resource needs and producer objectives.

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.

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.

**NRCS, FL
December 2007**

Plant material, seedbed preparation, seeding rates, dates, depths, and planting methods will be consistent with the varieties selected. Follow the appropriate planting guidelines in the following Florida NRCS Conservation Practice Standards:

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

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 sheet flow into the planned border area.

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

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 around the entire perimeter of the field, or as a minimum, provide a stable area on the windward edge of the field as determined by prevailing wind direction data.

Plant stiff-stemmed, upright grasses to trap saltating soil particles.

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

Water Erosion Reduction. Locate borders around entire 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.

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 Containments. 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).

Border widths will be designed to conform to minimum field application setback widths established by Florida NRCS Conservation Practices: Nutrient Management, Code 590 and Pest Management, Code 595.

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).

Use mechanical, cultural, and/or chemical techniques to reduce pest populations when and where they congregate in the field border.

Additional Criteria to Provide Wildlife Food and Cover

Establish plants that provide wildlife food and cover for the target wildlife species. See Florida NRCS Conservation Practice Guidance for Upland Wildlife Management, Code 645, for further guidance.

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.

The desired successional state of vegetation shall be maintained to accommodate target wildlife species.

When wildlife is 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 beyond the minimum 20 to 35 feet.

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 greatest above- and below- ground biomass for the site (i.e., a positive soil conditioning index).

Do not apply prescribed burning 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.

Establish species resistant to damage from equipment traffic.

Orient plant rows as closely as possible to perpendicular to the prevailing wind direction during the season of most concern.

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 to 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 to encourage local pollinator populations.

Use field borders as corridors to connect existing or planned habitats.

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, and wildlife benefits.

Schedule mowing, harvesting, and weed control to accommodate wildlife nesting needs and other special requirements or purposes.

Waterbars or berms may be needed to breakup or redirect concentrated water flows 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 agri-chemicals planned to be used.
- Drought where evapotranspiration can potentially exceed precipitation during the field border's active growing period(s).
- Equipment and other traffic impacts.

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 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 to be established.

- 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 (do not burn if purpose is carbon storage) 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.
- 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

- Florida NRCS Conservation Practice Standards
Critical Area Planting, Code 342
Nutrient Management, Code 590
Pasture and Hayland Planting, Code 512
Pest Management, Code 595
Tree/Shrub Establishment, Code 612
Upland Wildlife Habitat Management, Code 645
- Florida NRCS Conservation Practice Guidance for
Upland Wildlife Management, Code 645.
- Florida Plant List for Conservation Alternatives –
FOTG Section II (G)
- Core4 Conservation Practices, Chapter 3d - Field
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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.