Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

FIELD BORDER

CODE 386

(ac)

DEFINITION

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

PURPOSE

This practice is used to accomplish one or more of the following purposes–

- Reduce erosion from wind and water and reduce excessive sediment to surface waters
- Reduce sedimentation offsite and protect water quality and nutrients in surface and ground waters
- Provide food and cover for wildlife and pollinators or other beneficial organisms
- Reduce greenhouse gases and increase carbon storage
- Reduce emissions of particulate matter

CONDITIONS WHERE PRACTICE APPLIES

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

This practice does not apply to plantings that are intended to function primarily as filter strips or riparian buffers for which other standards are applicable. Refer to the Maryland conservation practice standards for Filter Strip (393), Riparian Herbaceous Cover (390), and Riparian Forest Buffer (391).

CRITERIA

General Criteria Applicable to All Purposes

Establish field borders at field edges to the extent needed to meet the resource needs and producer's objectives. Field borders shall be a minimum of 10 feet wide and shall consist of adapted species of perennial grass, forbs, and/or shrub species that accomplish the design objective.

Field borders that will be used primarily as travels lanes and turn rows shall be established wide enough to accommodate turning equipment for planting and harvesting. Generally, these activities require borders at least 20 feet wide.

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. For portions of the border that will be subject to equipment traffic, establish species tolerant to such traffic.

As part of seedbed preparation, eliminate any ephemeral gullies and rills present in the planned border area. Treat ephemeral gullies and rills located immediately upslope from the planned border area to ensure more sheet flow and less concentrated flow enters the field border area.

Break up or redirect concentrated water flow within the field borders to prevent gully erosion.

Seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions. Refer to the applicable sections of the Maryland Conservation Planting Guide for additional requirements concerning site preparation, species selection, planting, and establishment of herbaceous and/or woody species.

Control or exclude livestock as needed to establish and maintain the vegetative cover to meet its intended purpose.

Control plant and animal pest species to the extent feasible to achieve and maintain the intended purpose of the practice. Control noxious weeds as required by state law.

Additional Criteria to Reduce Erosion from Wind and Water and Reduce Excessive Sediment to Surface Waters

Field border establishment will be timed so that the soil will be adequately protected during the critical erosion period(s).

Establish permanent species that create a dense cover.

Establish stiff-stemmed, upright grasses, grass/legumes or forbs to trap wind or waterborne 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. 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 the critical erosion period(s).

Minimum height of grass or forbs shall be one foot during the critical wind 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 be perpendicular to sheet flow direction.

Additional Criteria to Reduce Sedimentation Offsite and Protect Water Quality and Excess Nutrients in Surface and Ground Waters

Do not burn the field border.

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 35 feet and have a dense vegetative stand (similar to a dense sod).

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

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

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

Where wildlife habitat is identified as the primary purpose, the minimum border width shall be 35 feet. Border widths and plant species shall be selected to provide wildlife food and/or cover for the desired

wildlife and/or pollinator species. Plantings shall consist of three or more species to provide greater vegetative diversity.

Use an approved habitat evaluation procedure to determine the appropriate amount, arrangement and composition of habitat resources needed to provide adequate food and cover for desired wildlife species.

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. When possible, disturb no more than 1/3 of the field border at any given time. Avoid vehicle traffic in the field border. Do not mow during the primary nesting season (April 15 to August 15).

For beneficial organisms (e.g., predatory and parasitic insects, spiders, insectivorous birds and bats, raptors, and terrestrial rodent predators) that prey on target pests, select diverse plant species that meet dietary, nesting, and cover requirements for the intended species, at least during the critical period for control of target pests, and ideally year-round. Avoid exposure of the field border to pesticides and other chemicals that are potentially harmful to wildlife, pollinators, and other beneficial organisms.

When wildlife and/or pollinators are a concern, a lower percent groundcover than would be needed if protecting soil and water quality 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.

Where wildlife cover is a concern, select species that will provide adequate escape and protective cover. Brambles and stiff-stemmed, hedge-forming species are favorable cover for wildlife that utilize field borders.

Additional Criteria to Reduce Greenhouse Gases and 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 will be achieved).

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

Do not burn the field border.

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

Additional Criteria to Reduce Emissions of Particulate Matter

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 mitigate the generation of airborne particulates.

Do not burn the field border.

Note: Specific programs may dictate criteria in addition to, or more restrictive than, those specified in this standard.

CONSIDERATIONS

Consider the long-term land use objectives of the client. For example, if the land user is interested in using the field border to provide wildlife habitat or additional forage production, consider the plant species that may be suitable for these uses.

Assess site conditions including surrounding land uses, soils, residual herbicides (to the extent known), available moisture during the growing season, and existing vegetation on the site and in adjacent areas, including any noxious weeds that may be present.

To maximize resource conservation benefits, plant field borders around the entire field, not just on the field edges where water enters or leaves the field.

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.

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 the producer's objectives. Include species that provide diverse pollen and nectar sources to encourage local pollinator populations. Where possible, re-establish the native plant community for the site.

Consider the management level required to maintain the field border in the desired composition and structure.

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

In selecting plant species, consider the plant's tolerance to the following:

- Sediment deposition and chemicals planned for application;
- Periods of drought when evapotranspiration can potentially exceed precipitation during the field border's active growing period(s);
- Shading from adjacent vegetation;
- Equipment traffic.

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

Border widths can be designed to accommodate equipment turning, parking, loading/unloading equipment, grain harvest operations, etc. to minimize soil compaction on the high-traffic field edges.

Water bars or berms may be needed to breakup or redirect concentrated water flow within the field border. Consider using other conservation practices on adjacent upland areas to reduce surface runoff and excessive sedimentation of field borders.

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

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 create a barrier between the pollen-producing crop and the crop that must be protected, or increase the distance between them so that crosspollination is less likely.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice shall be prepared in accordance with the previously listed criteria. Refer to the applicable sections of the Maryland Conservation Planting Guide for specifications concerning site preparation, species selection, planting dates, rates, methods, and care in handling and planting of the seed or planting stock. Plans and specifications shall contain sufficient detail to ensure successful implementation of this practice and may be recorded in narrative form, on Implementation Requirements (IR) sheets, or other approved forms.

Use the Maryland NRCS fact sheets Cool-Season Grasses, Warm-Season Grasses, Native Herbaceous Plantings, and Trees and Shrubs to provide additional planting and establishment information, as applicable, and complete the 386 IR sheet. The completed IR sheet and appropriate fact sheet(s) can serve as the planting plan and specifications for implementing this practice.

The following items shall be addressed, as appropriate:

- Practice purpose(s);
- Field border width(s) and length(s);
- Field border location(s);
- Method of site preparation;
- Species and rates to be seeded/planted;
- Seeding/planting dates;
- Rate and type of soil amendments to be applied (if any);
- Method(s) used to protect plantings from animal damage (e.g., fencing, repellents, etc.) or for weed control (e.g., weed mats);
- Watering or irrigation requirements for containerized stock, if applicable.
- Operation and maintenance requirements.

Supporting Data and Documentation

The following is a list of the minimum data and documentation to be recorded in the case file:

- Extent of planting in acres, field number where the practice is located, and the location of the practice marked on the conservation plan map;
- Assistance notes. The notes shall include dates of site visits, name or initials of the person who made the visit, specifics as to alternatives discussed, decisions made, and by whom;
- Completed IR sheet, and copy of the appropriate fact sheet(s) or other specifications and management plans.

OPERATION AND MAINTENANCE

An Operation and Maintenance (O&M) plan shall be prepared and is the responsibility of the client to implement. The IR sheet and appropriate fact sheet(s) may serve as the management plan, as well as supporting documentation, and shall be reviewed with and provided to the client.

At a minimum, the following components shall be addressed in the O&M plan, as applicable:

- Describe the extent of management needed to maintain vegetation in the desired species composition or age class (if applicable), or no management required (e.g., natural area);
- Inspect the field border at least annually. Shape and replant areas damaged by heavy rainfall, animals, chemicals, tillage, or equipment traffic, and any other areas where the stand is not adequate;
- Control undesirable plants by pulling, mowing, or spraying with a selective herbicide. Control noxious weeds as required by state law;
- When managing for wildlife, pollinator, and beneficial insect habitat, conduct any pesticide spray operations in adjacent fields in a manner that reduces exposure of the field border to pesticides, taking into account toxicity of the materials to non-pest organisms;
- When wildlife habitat is a concern, do not mow during the primary nesting season (April 15 to August 15);
- 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 the field border during the nesting season, mortality may be reduced by early and frequent mowing to reduce the field border’s attractiveness as a nesting site;
- Apply soil amendments periodically, if needed to maintain plant vigor. If nutrients are applied, refer to the conservation practice standard for Nutrient Management (590). If shrubs are included in the planting, do not fertilize in the first year because the plants will develop too much top growth

compared to the roots;

- Protect the field border from wildfire and damage from livestock, wildlife, and equipment, to the extent feasible;
- Do not use the field border for hay storage or machinery parking for an extended period of time, especially if doing so will damage or impair the function of the practice;
- Describe the acceptable uses (e.g., flash grazing, haying, harvesting of fruits or nuts, etc.) and time of year or frequency of use restrictions, if any. Pay particular attention to program requirements as they relate to acceptable vs. restricted uses, and other management restrictions.

REFERENCES

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