NRCS Natural Resources Conservation Service

# Field Border

## Field Borders for Pollinator Habitat

***Conservation Practice Job Sheet*** ***Code 386***

Sweat bee (*Agapostemon* sp.). Photo: Toby Alexander,Vermont NRCS.

*Information on this job sheet is considered to be part of the contract and/or conservation plan.*

### DEFINITION

Field borders are strips of permanent vegetation established at the edge or around the perimeter of a field. Vegetation consists of adapted grasses, legumes and/or shrubs.

### PURPOSE

Animal pollinators include bees, butterflies, moths, flies, beetles, ants and to a lesser extent hummingbirds. This job sheet will help you design field borders that provide habitat for native pollinator species.

Field borders can serve a variety of purposes. They are one of the most important components of a wildlife management plan and very important in maintaining healthy pollinator populations in areas where crop production depends upon insect pollination. These areas are important to provide nesting opportunities and food (nectar and pollen) for a wide variety of insects.

Field borders are located at the edges of crop fields and can connect to other buffer practices within fields. They are most effective when used in combination with other beneficial pollinator practices such as hedgerows or cover crops.

### POLLINATOR CRITERIA

The benefits to pollinators depend on the vegetative species used and the management practiced. It is usually not feasible to simply allow natural succession to provide pollen and nectar resources in sufficient quantities throughout the season. Planting is usually necessary to provide food over the entire length of the season.

When planting, always use plant species that provide nectar and pollen and are attractive to a variety of native insects. Some horticultural varieties of flowers bloom very attractively, but may not provide the necessary food for pollinators. Whenever possible use native plants.

When deciding the species of plants to establish, include a diverse mix of legumes or other forbs. Pay close attention to the species of existing plants and plant those species that complement existing native communities.

To create nesting habitat for bees on cropland, mowing combined with no till, can maintain access to the soil surface that provides areas for ground-nesting solitary bees. Also allowing field borders to become overgrown (e.g. with native grasses) can provide nesting habitat for bumble bees.

Some general criteria for field borders for pollinators are:

- A minimum of ten species including at least one native grass species should be established. This includes at least three species in each of the bloom periods very early or early, mid and late season.

| Season | Bloom Time |
|---|---|
| Very Early | March (or earlier) to April |
| Early | March through May |
| Mid | May through June |
| Late | July through Sept (or later) |

- Table 2 contains a list of potential seed mixtures that are suitable for pollinator field borders.

- The minimum width of a field border is 30 feet. The width of the border may be increased to protect areas of nesting or provide turn rows for equipment. If a portion of the field border will be used for equipment movement or turn rows in crop fields the width should be sufficient to allow a minimum of 10 feet of undisturbed habitat.
- Field borders will appear unkempt and be composed of a variety of plant species including forbs, grasses, shrubs and legumes.
- Consult the University of Kentucky Extension Service or the Kentucky Department of Fish and Wildlife (KDFWR) for acceptable chemical control methods for noxious and invasive plants.

**Table 1. Chemical Application Timing**

| METHOD | SETTING | TIMING | PROCEDURE |
|---|---|---|---|
| **Single Burn Down**<br>This option should not be used when tall fescue or other sod forming grass is the predominant cover. Two herbicide burndowns are recommended when fescue or other sod forming grass is the predominant cover. | Grassland adjacent to cropland or other area needed for pollinators | **Spring** | Remove vegetation in fall or winter via mowing or close grazing<br>Apply herbicide after vegetation has grown 4 to 6 inches in April to May<br>Apply broad spectrum herbicide product |
| **Double Burn Down**<br>This option should be used when tall fescue or or other sod forming grass is the predominant cover. | Grasslands adjacent to cropland or other area needed for pollinators | **Fall and Spring** | Remove excess vegetation in late summer (Aug to Sept.) by mowing, burning or grazing. Apply broad spectrum herbicide after vegetation has actively grown to 4 to 6 inches in Sept/Oct. Follow all label instructions. Apply broad spectrum herbicide just prior to planting and after the remaining vegetation grows 4 to 6 inches in April to May Follow all label instructions. |

- For mixtures containing native grasses, the seed is measured in Pure Live Seed (PLS) and should be stratified prior to planting. Inoculate all legume seed with the proper inoculants prior to planting.
- Sites that contain dense sods will need to be renovated with an herbicide prior to establishment of field borders. NRCS does not make specific herbicide recommendations. Refer to table 1 for timing of applications.
- Site preparation should be sufficient for no-till or conventional seeding methods.

## OPERATION AND MAINTENANCE

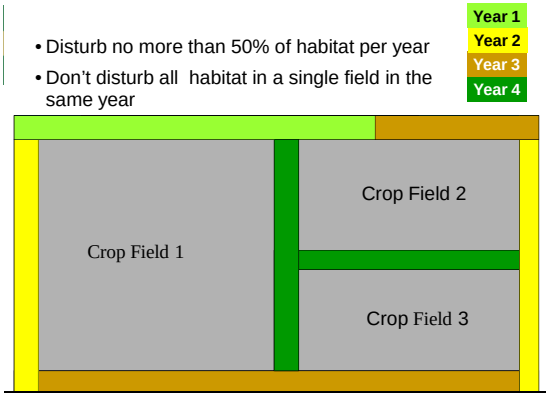
Inspect and repair field borders after storms to fill in gullies, remove sediment, re-seed disturbed areas, remove undesirable species and take other measures to ensure the effectiveness of the border.

Allow sufficient time for establishment prior to disturbance. Periodic disturbance of field borders is necessary to stimulate growth of desirable vegetation and to eliminate encroachment of woody vegetation. As a rule of thumb, disturbance should occur within a field border every 3-5 years. **When managing field borders for pollinators, never disturb more than 50 percent of the field borders surrounding a field in any one year.**

Delay mowing, disking or other disturbance of the area until after the nesting season for ground-nesting birds and other animals when possible.

Field borders should not be disturbed during the nesting season May 15th - August 1st to protect ground-nesting wildlife.

In place of mowing, consider other vegetative management techniques such as “wickbar” herbicide applicators or light disking on a rotational basis to promote growth of native vegetation. This is preferred over pesticide application.




A simplified disturbance scenario for pollinator habitat. (After H. Henry, NRCS )

**Table 2. Mixes Suitable for Pollinator Habitat Establishment** *(from Table 4 of the CPS Conservation Cover 327)*

| Common Name | Scientific Name | oz./ac | Common Name | Scientific Name | lbs. PLS/ac |
|---|---|---|---|---|---|
| Native Wildflowers | | | Native Grasses | | |
| **Pollinator Mix 1** | | | | | |
| blackeyed susan | *Rudbeckia hirta* | 2 | little bluestem | *Schizachyrium scoparium* | 1 |
| bergamot | *Monarda fistulosa* | 2 | side-oats grama | *Bouteloua curtipendula* | 1 |
| purple coneflower | *Echinacea purpurea* | 15 | Virginia wild rye | *Elymus virginicus* | 1 |
| Ohio spiderwort | *Tradescantia ohiensis* | 9 | | | |
| rigid goldenrod | *Solidago ridida* | 5 | | | |
| greyheaded coneflower | *Ratibida pinnata* | 7 | | | |
| New England aster | *Symphyotrichum novae-angliae* | 2 | | | |
| spiked blazing star | *Liatris spicata* | 12 | | | |
| smooth aster | *Aster laevis* | 2 | | | |
| **Pollinator Mix 2** | | | | | |
| blackeyed susan | *Rudbeckia hirta* | 2 | little bluestem | *Schizachyrium scoparium* | 1 |
| bergamot | *Monarda fistulosa* | 2 | side-oats grama | *Bouteloua curtipendula* | 1 |
| purple coneflower | *Echinacea purpurea* | 17 | Virginia wild rye | *Elymus virginicus* | 1 |
| white beardtounge | *Penstemon digitalis* | 5 | | | |
| rigid goldenrod | *Solidago ridida* | 3 | | | |
| greyheaded coneflower | *Ratibida pinnata* | 8 | | | |
| New England aster | *Symphyotrichum novae-angliae* | 2 | | | |
| false sunflower | *Heliopsis helianthoides* | 15 | | | |
| smooth aster | *Aster laevis* | 2 | | | |
| **Pollinator Mix 3** | | | | | |
| blackeyed susan | *Rudbeckia hirta* | 2 | little bluestem | *Schizachyrium scoparium* | 1 |
| bergamot | *Monarda fistulosa* | 2 | side-oats grama | *Bouteloua curtipendula* | 1 |
| purple coneflower | *Echinacea purpurea* | 10 | Virginia wild rye | *Elymus virginicus* | 1 |
| Illinois bundleflower | *Desmanthus illinoensis* | 10 | | | |
| rigid goldenrod | *Solidago ridida* | 3 | | | |
| greyheaded coneflower | *Ratibida pinnata* | 5 | | | |
| New England aster | *Symphyotrichum novae-angliae* | 2 | | | |
| partridge pea | *Cassia fasciculata* | 10 | | | |
| false sunflower | *Heliopsis helianthoides* | 12 | | | |
| **Pollinator Mix 4** | | | | | |
| blackeyed susan | *Rudbeckia hirta* | 2 | little bluestem | *Schizachyrium scoparium* | 1 |
| white beardtounge | *Penstemon digitalis* | 4 | side-oats grama | *Bouteloua curtipendula* | 1 |
| purple coneflower | *Echinacea purpurea* | 8 | Virginia wild rye | *Elymus virginicus* | 1 |
| Illinois bundleflower | *Desmanthus illinoensis* | 10 | | | |
| rigid goldenrod | *Solidago ridida* | 3 | | | |
| greyheaded coneflower | *Ratibida pinnata* | 5 | | | |
| New England aster | *Symphyotrichum novae-angliae* | 2 | | | |
| partridge pea | *Cassia fasciculata* | 10 | | | |
| false sunflower | *Heliopsis helianthoides* | 12 | | | |

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# SPECIFICATIONS

## 386 Field Border – KY Job Sheet

Site-specific requirements are listed on the specification sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide and the Field Border practice standard (386)

| | |
|---|---|
| **Client:** | **Farm #:** |
| **Field(s):** | **Tract #:** |
| **Designed By:** | **Date:** |

| **Additional Purpose(s)** (check all that apply) | |
|---|---|
| ☐ Provide pollinator forage (nectar and pollen) throughout the growing season | ☐ Management of harmful insect populations |
| ☐ Pollination of adjacent crops | ☐ Provide supplemental terrestrial wildlife food and cover |

| **Additional Information** | |
|---|---|
| ☐ Refer to the pesticide risk assessment attached (WinPST) | ☐ Refer to the attached herbicide recommendation from the University of KY |

| **Existing Vegetation** (Area to be converted to a field border) | |
|---|---|
| ☐ Tall fescue or other sod requiring removal prior to establishment of more beneficial vegetation (Refer to site preparation specifications) | ☐ Other vegetation that is non-beneficial to wildlife |
| | ☐ Cropland containing minimal noxious or sparse vegetation unsuitable to wildlife |

| **Layout** | **Field** _____ | **Rate** (PLS or lbs./ac) or % of mix | **Field** _____ | **Rate** (PLS or lbs./ac) or % of mix |
|---|---|---|---|---|
| **Border width** (ft.) (minimum of 30 feet) | | | | |
| **Border length along edge of field** (ft.) | | | | |
| **Total Area** (acres) | | | | |
| **Mixture from Table 2** [1] | | | | |
| (OPTIONAL) **Very Early and/or Early Season Bloom Species** | | | | |
| | | | | |
| | | | | |
| (OPTIONAL) **Mid-Season Bloom Species** | | | | |
| | | | | |
| | | | | |
| (OPTIONAL) **Late Season Bloom Species** | | | | |
| | | | | |
| | | | | |
| (OPTIONAL) **Native Grass Species** | | | | |
| | | | | |
| | | | | |
| **Method of Establishment** [2] | | | | |
| **Seeding/Planting Dates** | | | | |
| **Dates adjacent crops require pollination** (if applicable) | | | | |

[1] If planting one of the mixtures listed in Table 2 simply identify the mixture number or list the species and rates in the spaces below.

[2] Identify how the field border is to be established: **Drilled**, **Broadcast or Other** suitable method (specify in the Planting Method section).

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## Site Preparation

If fescue sod is present it will need to be removed prior to establishment of more wildlife friendly species by using a mowing/grazing/herbicide combination and drill into killed vegetation. Otherwise, prepare a firm seedbed by disking if using broadcast methods. Always use a cultipacker if possible.

**Additional requirements**:

## Planting Methods (Complete as appropriate)

A. Seed should be **broadcast** at a rate of _____ PLS lbs/ac. A small grain crop may be needed as a companion crop at the rate of _____ pounds per acre (clip or harvest before it heads out). If broadcasting, strive for about 30-50 seeds per square foot.

B. **Drill** grass and legume seed _____ inches deep uniformly over area. Establish vegetation according to the specified seeding rate. A small grain crop may be needed as a companion crop at the rate of _____ pounds per acre (clip or harvest before it heads out).

**Additional requirements**:

## Operation and Maintenance

Maintain original width and length of field border(s) for pollinators. Mow, re-seed and disk as necessary to maintain plant density and vigorous plant growth. **Note:** ***Routine fertilization is usually not required and may result in stands becoming weedy or rank.*** Inspect after major storms, remove trapped sediment, and repair eroding areas. Shut off pesticide sprayers when turning on a field border. Regular disturbance is necessary to maintain the intended function of the field border. Do not disturb more than 50% of all field border habitats in any one year. Do not disturb the entire field border habitat around a single field in the same year. Disturbance should occur when pollinators are not as active.

**Additional requirements**:

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## Additional Specifications and Notes:

Refer to the conservation plan map for locations

**For more information concerning this practice contact:**

_____ **at** _____

| CERTIFICATIONS | | | |
|---|---|---|---|
| Job Sheet | Prepared by: | Title: | Date: |
| | Approved by: | Title: | Date: |
| Installation | Meets NRCS standards and specifications. | | |
| | Certification by: | Title: | Date: |



Clear Form