United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E390B

CONSERVATION STEWARDSHIP PROGRAM

Increase riparian herbaceous cover width to enhance wildlife habitat

Conservation Practice 390: Riparian Herbaceous Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Associated Ag Land; and Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock, and increase the width of the buffer.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 100 feet or the State-allowed maximum width.
- The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.
- Select native species adapted to the site. Selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

- Density of the vegetative stand established shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity. The location, layout and vegetative structure and composition of the buffer should complement natural features.

- Corridor configuration, establishment procedures and management should enhance habitats for threatened, endangered and other plant or animal species of concern, where applicable.

- Include forbs and legumes that provide pollen and nectar for native pollinators. Utilize a diverse mix of plant species that bloom at different times throughout the year.

- If mowing is necessary to maintain herbaceous cover it will occur outside the nesting and fawning season and allow for adequate re-growth for winter cover. To protect pollinators and maintain habitat with a diversity of plant structure, a third or less of the site should be disturbed (mowed, grazed, burned, etc.) each year, allowing for recolonization of pollinators from surrounding habitat.

- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.

- Protect riparian vegetation by reducing or excluding haying and grazing until the desired plant community is well established, with grazing deferred for a minimum of two years.

- Control access of people, machinery, and livestock to the riparian zone with fencing.

- Design the expanded buffer enhancement for an expected life of at least 5 years.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation, prepare the planned buffer area for vegetation establishment. Refer to NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390). (NRCS will provide technical assistance, as needed.)

☐ Prior to implementation, in areas that are highly disturbed and unlikely to have existing native seed in the soil, work closely with NRCS to select plant species that are adapted to your specific site. (NRCS will provide technical assistance, as needed.)

Species	Species type (grass, legume, forb)	Rate (Lbs/Ac) PLS

☐ Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Seeding Depth	

☐ During implementation, grade the site, as needed, to eliminate concentrated flow through the buffer including that from uphill from the buffer.

☐ During implementation, conduct planting of selected species according to dates, techniques, depth, and other requirements listed in the plan.

☐ During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.

☐ During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.

☐ After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.

- ☐ After implementation, protect the area by reducing haying and excluding grazing until the plant community is established, deferring grazing for a minimum of two years.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390) to show how it relates to this enhancement.
- ☐ Prior to implementation, verify this enhancement is planned for cropland.
- ☐ Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species and meet with participant to review the Management Plan.
- ☐ Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- ☐ Prior to implementation, verify no plants are on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
    - o Planned site preparation meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390).
    - o Selecting plant species that meet the habitat needs of targeted wildlife species, and that have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, tolerance to locally used herbicides, and best suited to site saturation and inundation conditions.
    - o Select planting techniques and timing that is appropriate for the site and soil conditions.
    - o Plan the use of additional erosion control, as needed for the site.
    - o Prepare specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- ☐ After implementation, verify the vegetation was established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests, has had limited haying, and that grazing is being excluded, if established less than two years.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

CSP WILDLIFE BENEFICIAL HERBACEOUS PLANT SPECIES

TABLE 1
APPROVED PLANTS*/PLANTING RATES**
MISSISSIPPI

NATIVE GRASSES

Species*	Minimum Units Per Acre 1/**	Planting Dates
Kaw Big Bluestem	5.5 Lbs. PLS 2/	Apr-May
Earl Big Bluestem	5.5 Lbs. PLS	Apr-May
Lometa Indiangrass	4.5 Lbs. PLS	Apr-May
Alamo Switchgrass	4.5 Lbs. PLS	Apr-May
Kanlow Switchgrass	4.5 Lbs. PLS	Apr-May
Aldous Little Bluestem	5.0 Lbs. PLS	Apr-May
Alantic Coastal Panic Grass	5,000 sprigs; 10-20 Lbs.	Nov-Mar; Jun-Sep
Other*:		

Note - The Mississippi Planting Guide recommends that minimum planting rates for native grass species should be doubled for critical area plantings.

NATIVE LEGUMES

Species* 3/	Minimum Units Per Acre 1/**	Planting Dates
Common Partridge Pea	6 Lbs.	Feb-May 15
Lark Selection Partridge Pea	6 Lbs.	Feb-May 15
Beggarweed	10-15 Lbs.	Apr-May
Florida Beggarweed	10-15 Lbs.	Apr-May
Other*:		

INTRODUCED LEGUMES

Species* 3/ 4/	Minimum Units Per Acre 1/**	Planting Dates
Ladino and White Dutch Clover	3 Lbs.	Sep-Oct 15
Kobe Lespedeza	15-30 Lbs.	Mar-Apr
Perennial Red Clover	8-12 Lbs.	Sep-Oct 15
Crimson Clover **(Critical Area ONLY)**	20 Lbs.	Sep-Oct 15
Other*:		

***Due to the wide variety of geographical areas and plants species which might be suitable for wildlife, this listing may be incomplete. However, other species added must be approved by the area or state biologist before they can be used for CSP. Caution should be exercised not to plant species that have an invasive nature.**

****Planting rates shown are for planned conservation practices approved for CSP.**
Recommended planting rates and spacing may vary slightly depending on intended wildlife uses (cover vs. food) and may be less than rates recommended in planting guides. Reference the appropriate Standard and Specification in the Field Office Technical Guide and the "Mississippi Planting Guide". Also consult with area biologist.

1/ Use 60% of recommended rate when planting a mixture of 2-3 species.
Use 30% of recommended rate when planting a mixture of 4 or more species.
Where seeding ranges are given, use the low seeding rate when drilled. Use higher rates when broadcast.
Also low seeding rates or a small reduction in general agricultural seeding rates may be desirable for wildlife use.

2/ PLS - Pure Live Seed

3/ Inoculate legumes with the appropriate inoculate for the species.

4/ These species must be established as part of a diverse mixture that includes native warm season grasses, forbs and/or shrubs. However, introduced legumes can be established to enhance natural succession when it alone is expected to provide a diverse cover mixture that includes any of the following components: native warm season grasses, forbs and/or shrubs.

TABLE 2
EXAMPLE NATIVE GRASS & WILDLIFE MIXTURES 1/ FOR CSP

MISSISSIPPI

Species	PLS/Ac 2/
Example for Wildlife and Grassland Nesting Birds 1/	
Little Bluestem	1.5 – 3.0
Big Bluestem	0.5 - 1.5
Indiangrass	0.5 - 1.5
(Total NWSG's)	4.0 – 6.0
Partridge Pea	4.0*****
Kobe Lespedeza	12.0*****

Species	PLS/Ac 2/
Example for Critical Area / Additional Erosion Control	
Switchgrass	2.0
Indiangrass	1.0 - 2.0
Big Bluestem	1.0 - 2.0
Little Bluestem	3.0 - 4.0
(Total NWSG's)	8.0 – 10.0
Partridge Pea	4.0*****
Kobe Lespedeza	12.0*****

1/ For additional aesthetic and wildlife benefits, 0.5 pounds of wildflower seeds may be added to the mixture.
2/ Pounds of Pure Live Seed (PLS) planted per acre.
Note:
*Seeding Rates for Partridge Pea and Kobe Lespedeza are listed in pounds per acre *not* PLS.

Note: Consult a qualified natural resources professional to select appropriate rates, species and cultivars/varieties of available NWSG seed and forbs that best fit objectives.

Recommended Native Warm Season Grass Varieties for Mississippi
(bold varieties indicate proven performance at sites in Mississippi)

Common Name	Scientific Name	Varieties or Cultivars
Big Bluestem	*Andropogon gerardii*	**Kaw**, **Earl**, Pawnee, Rountree
Little Bluestem	*Schizachyrium scoparium*	**Aldous**, Cimmaron, Camper, Blaze
Indiangrass	*Sorgastrum nutans*	**Lometa**, **Osage**, Americus, Cheyenne, Rumsey
Switchgrass	*Panicum virgatum*	**Alamo**, Blackwell, Pathfinder

Other Native Forbs and Legumes Recommended for Mississippi

Common Name	Scientific Name	Form	Soil adaptation**
Wild bergamont	*Monarda fistulosa*	broadleaf forb	L, M, H
Oxeye	*Heliopsis helianthoides*	broadleaf forb	M, H
Ragweed	*Ambrosia artemisiifolia*	broadleaf forb	L, M, H
Blazing star	*Liatris spp.*	broadleaf forb	M, H
Purple cone flower	*Echinacea purpurea*	broadleaf forb	M, H
Coneflowers	*Radtibida spp.*	broadleaf forb	M, H
Coreopsis	*Coreopsis spp.*	broadleaf forb	M, H
Compass plant	*Silphium laciniatum* and other *Silphium spp.*	broadleaf forb	H
Maximilian sunflower	*Helianthus maximiliani*	broadleaf forb	M, H
Common sunflower	*Helianthus annuus*	broadleaf forb	M, H
Narrow leaved sunflower	*Helianthus angustifolius*	broadleaf forb	L, M
Butterfly milkweed	*Asclepias tuberosa*	broadleaf forb	M, H
Blackeyed susan	*Rudbekia hirta*	broadleaf forb	L, M, H
Illinois bundleflower	*Desmanthus illinoensis*	legume	H
Florida beggarweed	*Desmodium tortuosum*	legume	L, M, H
Smooth ticktrefoil	*Desmodium laevigatum*	legume	L, M, H
Stiff ticktrefoil	*Desmodium obtusum*	legume	L, M, H
Partridge pea (Lark)	*Chamaecrista fasciculata*	legume	L, M, H
Roundhead lespedeza	*Lespedeza capitata*	legume	L, M, H
Slender lespedeza	*Lespedeza virginica*	legume	L, M, H
White prairie clover	*Dalea candida*	legume	H
Purple prairie clover	*Dalea purpurea*	legume	H
White indigo	*Baptisia alba*	legume	L, M

** L = Light soils include dry, sandy soils; M = Medium soils are well-drained loam and clay soils; H = Heavy soils are moderately- to poorly-drained, heavy clay soils (prairie or Delta soils)

Management Tips for Planting Native Grasses

Introduction

The Jamie L. Whitten Plant Materials Center has developed a Seed and Plant Vendors Directory for Conservation Plants. This publication should serve as a reference to assist conservationists in locating vendors of native grasses and legumes used for the WHIP program.

The directory is not intended to provide a complete listing of vendors and the mention of any vendor does not indicate endorsement by NRCS, nor does NRCS guarantee availability or quality of seeds and plants produced by any vendor.

Seedbed Preparation

Loose uneven seedbeds are a major cause of poor stands. Your shoes or boots should not sink more than ½ inch into a properly prepared seedbed. Seeding depth is critical in establishing native grasses and legumes. Seeds sown on the surface without coverage or greater than ½ inch deep have little chance of developing into seedlings.

Establishment Method

Native grasses can be propagated from seed. Planting rates are based on pure live seed (PLS) lb/acre and **NOT** bulk lb/acre. Failing to recognize PLS when calculating seeding rates will jeopardize the planting. For more information on planting native grasses based on pure live seed refer to technical note Pure Live Seed Method of Establishing Native Grasses.

Cultipack seeders or press-wheel drills with depth bands are ideal to achieve proper seed placement. Fluffy seed will not flow through a conventional drill because appendages surrounding the seed cause it to pack together inside the tubes and not flow freely like wheat or corn. The drill should be equipped with a fluffy seed box.

Successful seeding can be achieved by broadcast seeding at an increasing the seeding rate by 20% and by rolling or cultipacking before and after seeding. Mixing fluffy seed with a carrier such as sand or fertilizer (P and K) helps facilitate broadcast seeding. Even with a carrier, planting fluffy seed by broadcast method is difficult.

Planting Time

Warm season native grasses should be planted in March or April. A good rule of thumb is to plant the seed before the last frost. Avoid planting after May 1 because moisture and weed competition may delay stand establishment.

Fertilizer

Warm season native grasses can be productive on low fertility soils, but fertilization will increase plant vigor. Follow soil test recommendations for applying P, K, and lime. Incorporate lime into the soil in the fall to allow it time to adjust pH before planting in the spring. Incorporate P and K into the soil at planting time. Because nitrogen promotes weed growth it should not be applied until a stand is evident during the establishment year.

Weed Control

There are no labeled herbicides for establishment of native grasses. Clipping in late July to remove weed competition during the establishment year is recommended. Clipping in March to a height of 6-8 inches is recommended for residue control after establishment.

Applying 2, 4-D after the seedling reaches the four leaf stage can control broadleaf weeds in native grasses during the establishment year. If the native grass mixture contains a legume or forb do not spray with 2,4-D. Burning is another tool to control weeds. Besides weed control, burning in the spring promotes rapid regrowth. Burning should be performed before the grass greens-up. Native grasses are generally burned in late February at the PMC.

'Alamo' Switchgrass *(Panicum virgatum)*

Description: A native warm-season perennial grass that occurs over much of the Southeast. It usually grows 4 to 7 feet high. Leaves are 1/4 to 1/2inch wide and green to bluish-green in color. It has heavy vigorous roots and above ground stems.

Uses: Wildlife food and cover, warm-season forage, vegetative barriers, field borders.

Soil Adaptation: Prefers deep, well-drained, moist, fertile soils, but will perform satisfactory on most soils except those that are extremely droughty or very poorly drained.

'Lometa' Indiangrass *(Sorghastrum nutans)*

Description: A native warm-season perennial grass. It occurs over much of the Southeast. It usually grows 4 to 7 feet high. Leaves are long, narrow, bluish-green, and waxy.

Uses: Wildlife cover, warm-season forage, and erosion control.

Soil Adaptation: Well-drained, fertile soils. It performs well on most soils except those that are very droughty or poorly drained.

Seed Dealers: Turner Seed Company, Breckenridge, TX (817-559-2065); Bamert Seed Company, Muleshoe, TX (806-272-5506).

'Kaw' Big Bluestem *(Andropogon gerardii)*

Description: A native warm-season perennial tall grass often reaching heights of 8 feet. Big bluestem grows in large clump and is extremely leafy, and palatable to livestock.

Uses: Warm-season forage and wildlife cover.

Soil Adaptation: Well-drained, fertile soils. It performs well on most soils except those that are very droughty or poorly drained.

Seed Dealers: Turner Seed Company, Breckenridge, TX (817-559-2065); Sharp Bros. Seed Company, Clinton, MO (316-398-2231); Bamert Seed Company, Muleshoe, TX (806-272-5506); Sharp Bros. Seed Co., Healy, KS (316-398-2231).

'Aldous' Little Bluestem *(Schizachyrium scoparium*

Description: A native warm-season perennial bunch grass that grows to heights of 2 to 4 feet. In the southeastern states, little bluestem is often mistaken for broomsedge bluestem because of similarities in height, color and growth form.

Uses: Erosion control, wildlife cover and as component in a native warm season grass mixtures.

Soil Adaptation: Prefers deep, well-drained, fertile soils, but will perform satisfactory on droughty soils.

Seed Dealers: Sharp Bros. Seed Co., Healy, KS (316-398-223 1); Stock Seed Farms, Murdock, NE (402-867-3771); Bamert Seed Company, Muleshoe, TX (806-272-5506).

Lark Selection Partridge Pea *(Chamaecrista fasciculata)*

Description: Partridge pea is a native, warm-season annual legume with numerous yellow flowers produced from July to September. Plants average 2 feet tall, but may exceed 4 feet on better soil. The leaves are pinnately compound and somewhat sensitive to the touch. The black, shiny, flattened seeds are produced in pods that pop open to scatter the seed when mature.

Uses: This seed is a choice food of upland game birds and song birds.

Soil Adaptation: Grows naturally on practically all soils in Mississippi. It grows best in full sun, but will tolerate light shade.

Seed Dealers: Sims Bros. Seed, Union Springs, AL, 334-738-2619; Spandle Nursery, Claxton, GA, 912-739-1598; Steve Payne, Coldwater, MS, 601-562-9405; Kaufman Seeds, Inc., Ashdown, AR, 501-898-3328.

Note: To insure modulation seed should be inoculated with EL (cowpea) before planting. Cultipacking after planting is recommended.

Management: Disking/burning of natural or planted stands of partridge peas usually reseed and do well for one to three years but will gradually decline without maintenance. Areas should be burned in February for best results. Disking in late February to early March will also keep stands in good condition and is probably a better method in areas where heavy stands of broomsedge occur.

Management techniques were developed by the Jamie L. Whitten Plant Materials Center in Coffeeville, MS.

Pure Live Seed Method of Establishing Native Grasses

Native grass seed lots vary widely in quality and price with lots containing various amounts of inert material, weed seeds and grass seeds that will not grow. To account for the variability in seed lots, the pure live seed (PLS) method of planting was developed to insure correct seeding rates. Since only live seeds of the desired crop are of value, the amount of other material in a seed lot must be accounted for in the seeding rate. Seed sold by bulk pounds do not consider the amount of other material in the seed.

To calculate the pure live seed in a lot of seed simply use the following formula.

$$\frac{\%\text{Purity} \times \%\text{Germination}}{100} = \text{Pure Live Seed (PLS)}$$

It is important to plant seed with the highest purity percentage. This reduces the amount of detrimental materials, i.e., other crop or weed seed which will compete with grass seedlings during establishment. The other factor to consider when calculating PLS is germination percentage. Germination percentage is calculated by the number of seed which will produce a viable seedling in germination trials divided by the total number of seed tested. All of this information can be found on a seed tag (see example) that is attached to the original bag of seed.

XYZ Seed Company

Kind: Alamo Switchgrass	**Purity: 92.30%**	Weed Seed: 0.00%
Lot: SSG 1-98	Other Crop: 0.01%	Bulk Wt: 50 lbs
Test Date: 12/98	Inert: 0.01%	**Germination: 88.00%**
Origin: Texas	Noxious Weed Seed: 0	Hard Seed: 5.00%
Net Wet. 44 (lbs PLS)	Dormant Seed: 0.00%	

To plant 10 pls pounds of Alamo Switchgrass from the *XYZ Seed Company*, first calculate the %PLS:

$$\frac{92.30\%\ \text{(Purity)} \times 88.00\%\ \text{(Germination)}}{100} = 81.22\%\ \text{PLS}$$

Then:

$$\frac{10\ \text{pls (Desired Rate)}}{81.22\%\ \text{(PLS)}} \times 100 = 12.31\ \text{lbs of bulk seed}$$

12.31 lbs. of the Alamo Switchgrass from the X*YZ Seed Company* would be needed to plant 10 pls pounds per acre. An alternative method to calculate the PLS is to use the quick reference guide provided on the next page.

Bulk Pounds of Seed Required to Plant One Pound of Pure Live Seed

Seed analysis is seldom presented as a whole number ending in "0" or "5". It is sufficiently accurate to use the nearest whole number. For example: 37.50% to 42.49% would be considered as 40% and 42.50% to 47.49% would be 45%.

To use this chart, simply cross reference the % Germination down to the corresponding % Purity. Using the *XYZ Seed Company* example from the previous page, 88% would round to 90% Germination and 92.30% would round to 90% Purity. Multiply the desired PLS (10 lbs.) by the number from the table (1.3). 13 lbs. of seed from the *XYZ Seed Company* would be needed to plant 10 pls lbs. per acre.

% Germination

% Purity	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10
100	1.0	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.3	2.5	2.9	3.4	4.0	5.0	6.7	10.0
95	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.8	2.0	2.2	2.4	2.7	3.1	3.6	4.3	5.3	7.1	10.6
90	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.8	1.9	2.1	2.3	2.5	2.8	3.2	3.8	4.5	5.6	7.5	11.2
85	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.9	2.0	2.2	2.4	2.7	3.0	3.4	4.0	4.8	5.9	7.9	11.8
80	1.3	1.4	1.4	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.5	2.8	3.2	3.6	4.2	5.0	6.3	8.4	12.5
75	1.4	1.5	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.5	2.7	3.0	3.4	3.9	4.5	5.4	6.7	8.9	13.4
70	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.2	2.4	2.6	2.9	3.2	3.6	4.1	4.8	5.8	7.2	9.6	14.3
65	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.5	3.9	4.4	5.2	6.2	7.7	10.3	15.4
60	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.4	3.8	4.2	4.8	5.6	6.7	8.4	11.2	16.7
55	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.8	3.1	3.4	3.7	4.1	4.6	5.2	6.1	7.3	9.1	12.2	18.2
50	2.0	2.2	2.3	2.4	2.5	2.7	2.9	3.1	3.4	3.7	4.0	4.5	5.0	5.8	6.7	8.0	10.0	13.4	20.0
45	2.3	2.4	2.5	2.7	2.8	3.0	3.2	3.5	3.8	4.1	4.5	5.0	5.6	6.4	7.5	8.9	11.2	14.9	22.3
40	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.9	4.2	4.6	5.0	5.6	6.3	7.2	8.4	10.0	12.5	16.7	25.0
35	2.9	3.1	3.2	3.4	3.6	3.9	4.1	4.4	4.8	5.7	5.8	6.4	7.2	8.2	9.6	11.5	14.3	19.1	28.6
30	3.4	3.6	3.8	4.0	4.2	4.5	4.8	5.2	5.6	6.1	6.7	7.5	8.4	9.6	11.2	13.4	16.7	22.3	33.4
25	4.0	4.3	4.5	4.8	5.0	5.4	5.8	6.2	6.7	7.3	8.0	8.9	10.0	11.5	13.4	16.0	20.0	26.7	40.0
20	5.0	5.3	5.6	5.9	6.3	6.7	7.2	7.7	8.4	9.1	10.0	11.2	12.5	14.3	16.7	20.0	25.0	33.4	50.0
15	6.7	7.1	7.5	7.9	8.4	8.9	9.6	10.3	11.2	12.2	13.4	14.9	16.7	19.1	22.3	26.7	33.4	44.5	66.7
10	10.0	10.6	11.2	11.8	12.5	13.4	14.3	15.4	16.7	18.2	20.0	22.3	25.0	28.6	33.4	40.0	50.0	66.7	100.0

Developed by the Jamie L. Whitten Plant Materials Center, Coffeeville, MS

NRCS Natural Resources Conservation Service
MISSISSIPPI

SPECIFICATION SHEET FOR ESTABLISHMENT OF VEGETATION

_____ **Program**

Fiscal Year: _____

MS-ECS-ESTVEG-01 (SS)
Rev. September 2011

INFORMATION ON THIS SPECIFICATION SHEET IS CONSIDERED TO BE A PART OF THE NRCS CONTRACT AND/OR CONSERVATION PLAN THAT HAS BEEN DEVELOPED WITH THE PARTICIPANT. Each contract will have a site-specific plan developed by NRCS and the participant. This plan will at a minimum consist of the location, practice(s), species to be established, planting dates and depth, spacing, seeding rates, lime and fertilizer rates, site prep (if needed), and method of planting.

Participant Name(s): _____ County: _____

Contract Number: _____ FSN: _____ Tract No.: _____ Date Prepared/Revised: _____

ESTABLISHMENT REQUIREMENTS 1/

FIELD NO(S).	ACRES	PRACTICE NO. AND NAME	SPECIES **2/**	UNITS/AC AND/OR SPACING	PLANTING DATES	SITE PREPARATION	FERTILIZER / LIME REQUIREMENTS UNITS/AC **3/**	ESTABLISHMENT METHOD AND PLANTING DEPTH	SCHEDULED COMPLETION DATE
							Fertilizer: **Lime:**		
							Fertilizer: **Lime:**		
							Fertilizer: **Lime:**		

1/ Sources: FOTG Section IV, Planting Guides, Job Sheets. **If Column does not apply, enter N/A.**

2/ Species - May contain trees, shrubs, introduced or native grasses, legumes and/or forbs.

3/ Lime and fertilizer will be applied in accordance with soil test recommendation and program requirements (if applicable). Document fertilizer requirements in lbs. of N-P-K/ac.; lime in tons/ac.

SPECIES RECOMMENDED FOR PLANTING POLLINATOR ENHANCEMENT AREAS IN MISSISSIPPI

Flowering Dates	Soil	Sun	Botanical Name	Common Name	Color	Height	Visitation by Pollinator
Perennial Flowers							
April-June	moist	sun to partial shade	Coreopsis spp.	Tickseed	golden-yellow	4-18”	butterflies, hummingbirds
March-September	moist to dry	sun to partial shade	Salvia coccinea	Blood Sage, Scarlet Sage	red	12-36”	butterflies, bees, hummingbirds
March-June	moist to dry	sun to partial shade	Salvia lyrata	Lyre-leaf Sage	white, blue, lavender, violet	12-24”	hummingbirds, butterflies
February- May	moist to dry	sun	Nuttallanthus spp.	Toadflax	blue, violet	1-3’	butterflies, bees
May-September	moist to dry	sun to partial shade	Achillea spp.	Yarrow	white, light yellow	10-36"	bees, beetles, flies, butterflies
May-August	moist to wet	sun	Asclepias spp.	Common Milkweed, Butterfly Milkweed, Swamp Milkweed	pink, purple, white, orange to yellow	24-36”	butterflies, bees
May-September	dry	sun to partial shade	Coreopsis tinctoria	Golden Tickseed	yellow with red-brown centers	18-24”	butterflies, syphrid flies, bees
May-July	moist	sun to partial shade	Desmanthus illinoensis	Illinois Bundleflower	white	2-18”	bees, butterflies, flies
May-July	moist to dry	sun to partial shade	Dracopis spp.	Clasping Coneflower	yellow with red-brown centers	12-36”	bees, butterflies
May-July	moist to dry	sun to partial shade	Penstemon spp.	Beardtongue	white to blue	1-3’	bees, hummingbirds
May-September	moist to dry	sun to partial shade	Ratibida pinnata	Pinnate Prairie Coneflower or Greyhead Coneflower	yellow with red-brown centers	3-5’	butterflies, bees
May-October	moist to dry	sun to partial shade	Rudbeckia spp.	Black-eyed Susan, Brown-eyed Susan	yellow, brown center	14-20”	bees, beetles, flies, butterflies
May-June	dry	sun to partial shade	Tephrosia virginiana	Virginia Goat’s-rue	pink/yellow	8-28”	butterflies, hummingbirds
Sept-Oct	moist	sun	Bidens aristosa	Beggar Ticks or Bur-marigold	yellow	24-36”	bees, beetles, flies, butterflies
June-September	moist	sun to partial shade	Chamaecrista spp.	Partridge Pea	yellow	18-30”	bees
July-August	moist to dry	sun to partial shade	Desmodium spp.	Ticktrefoil, Beggar Ticks, Stick Tights	pink to purple	18-30”	bees, butterflies
July-October	moist	sun to partial shade	Eupatoriadelphus spp.	Trumpet Weed or Joe Pye Weed	pink, lavender	to 8’	bees, butterflies, flies
August-Oct	dry	sun to partial shade	Eupatorium spp.	Boneset, Thoroughwort, Sweetscented Joe-Pye Weed	white, pink	18-36”	butterflies, beetles, bees
August-Oct	dry to wet	sun	Helianthus spp.	Narrowleaf or Swamp, Woodland, Hairy Sunflowers	yellow	5-7’	butterflies, beetles, bees
July-Sept	moist to mesic	sun	Liatris spicta	Dense Blazing Star	rosy-pink to purple	3-4’	butterflies, bees, hummingbirds
July-Oct	dry	sun to partial shade	Solidago spp.	Goldenrod	yellow	2-4’	butterflies, bees, beetles
August-October	moist to dry	sun to partial shade	Symphyotrichum spp.	New England Aster, Blue Wood Aster, White Oldfield Aster	white, blue, lavender	18"-6’	butterflies, bees
August-October	moist	sun to partial shade	Vernonia gigantea	Ironweed	purple	3-5’	bees, beetles, flies, butterflies

Forb (flowering) mixtures should contain at least 3 species that bloom before June; 3 additional species that flower sometime between June-July; and 3 additional species that flower after July. The 3 species need not be in bloom for the entirety of a bloom period. Mixtures of forbs and/or legumes should be planted at the rate of 20 - 40 pure live seed (PLS) per square foot.

Native Grasses							
June-October	dry	sun to partial shade	*Schizachyrium scoparium*	little bluestem	yellow	3-6’	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	*Sorghastrum nutans*	Indiangrass	yellow	3-8’	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	*Andropogon gerardii*	big bluestem	red, blue, brown	4-8’	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	*Andropogon spp.*	other native bluestem spp. (broomsedge, bushy, etc.)	yellow, white, brown	3-6’	butterflies (larval host), bees (for ground nesting)
Aug-October	moist to dry	sun to partial shade	*Panicum virgatum*	switchgrass	green, brown	3-6’	butterflies (larval host), bees (for ground nesting)
June-October	moist to dry	sun to partial shade	*Bouteloua curtipendula*	sideoats grama	red, orange, yellow	1-3’	butterflies (larval host), bees (for ground nesting)

Mixtures of forbs, legumes and/or native grasses should be planted at the rate of 40 - 60 PLS per square foot with no more than 25% of the seed mix being made up of a native warm season grass seed.