CONSERVATION COVER

(Acres)
Code 327

Natural Resources Conservation Service
Conservation Practice Standard

I. Definition

Establishing and maintaining permanent vegetative cover.

II. Purpose

This practice may be applied to accomplish one or more of the following.

- Reduce soil erosion and sedimentation.
- Improve water quality.
- Improve air quality.
- Enhance wildlife habitat.
- Improve soil quality.
- Manage plant pests.
- Promote habitat for native pollinators.

III. Conditions Where Practice Applies

This practice applies on all lands needing permanent vegetative cover. This practice does not apply to plantings for critical area protection or forage production.

IV. Federal, Tribal, State, and Local Laws

Users of this standard should be aware of potentially applicable federal, tribal, state and local laws, rules, regulations or permit requirements governing conservation cover. This standard does not contain the text of federal, tribal, state, or local laws.

V. General Criteria

A. General Criteria Applicable to All Purposes

1. Specie Selection and Seed Quality

   Species shall be adapted to soil, climatic, and ecological site conditions.

   Species planted shall be suitable for the planned purpose and site conditions.

Species identified as restricted or prohibited by law shall not be planted.

The minimum seeding requirements are based on seeds per square foot for the intended purpose.

Certified Seed[1] shall be used, and seeding rates will be based on *Pure Live Seed* (PLS). Seed tag information such as purity and germination and any computations to adjust seeding rates must be submitted to document actual seeding rates. *Actual adjusted seeding rates* will be based on the equivalent of 100 percent PLS, determined by multiplying the percent purity by total percent germination.

Untested introduced grass and forb seed are not approved for planting.

When certified native grass or forb seed is unavailable or difficult to locate, *non-certified* seed can be used, as long as the seed has been tested for varietal purity, germination, and other mechanical qualities, such as inert matter and other crop or weed seeds.

Untested locally harvested native grass or forb seed that is planned for use under the criteria of this standard must be approved by the NRCS State Agronomist prior to seeding.

Introduced and native legumes shall be inoculated with the proper Rhizobium bacteria.

If more than 20 percent of the legume seed is hard seed, increase the seeding rate for legumes by the percent of hard seed.

Use non-sod forming species in locations where shrub and tree establishment is planned.

[1]Words in the standard that are shown in italics are described in X. Definitions. The words are italicized the first time they are used in the text.

2. Seeding Periods

   The specific date that provides the best chance for success will vary from south to north and from year to year with prevailing moisture and temperature conditions. Late summer seeding is generally riskier than spring seeding. Planting at either end of the allowable range is riskier than the middle of the range. Refer to Figure 1 for planting zones and Tables 16 and 17 for seeding dates.

   Seeding outside of the recommended dates must be approved by the Area Resource Conservationist or State Agronomist.

   The *frost seeding* period in Wisconsin ranges from mid February to early March and will vary from year to year depending on the weather. Frost seeding is allowed only during the active freezing and thaw cycle and is allowed for native and *introduced species*. For additional frost seeding information, refer to Wisconsin Agronomy Technical Note 5, Establishing and Maintaining Native Grasses, Forbs, and Legumes; and Wisconsin Agronomy Technical Note 6, Establishing and Maintaining Introduced Grasses and Legumes.

3. Nutrient and Soil Amendment Requirements

   When seeding introduced species, soil fertility and pH level will be amended to satisfy the needs of the plant species to be established. Fertilizer and lime recommendations will be determined by a soil test. If no soil test is available, apply a minimum of 150 pounds of 20-10-10 fertilizer and 2 tons of 80-89 lime or equivalent per acre. Soil amendments may be waived at the discretion of a certified conservation planner. The basis for waiving the use of soil amendments shall be documented in the client's case file.

   For establishment of *native species,* the use of soil amendments is not required.

4. Seedbed Preparation

   Prior to planting into cropland fields, verify that herbicides previously applied to the site will not "carry over" and damage the new seeding.

   Site preparation shall be adequate to assure weed suppression and to promote germination and growth of the species planted.

   Planting equipment type, use, and timing shall be appropriate for the site conditions, soil characteristics, and type of seeds (size, etc.) selected to assure uniform placement and germination.

   Refer to Wisconsin Agronomy Technical Notes 5 and 6 for detailed seedbed preparation guidance for specific situations.

5. Temporary Cover and Companion Crop

   Temporary cover and companion crops are vital practices utilized to support the successful establishment of herbaceous plantings. Temporary cover and companion crops suppress weed growth and limit soil erosion during the establishment period. Use depends on the site conditions, method of planting, and seed mixture.

   For further details regarding temporary cover and companion crop recommendations, refer to Wisconsin Agronomy Technical Notes 5 and 6.

B. Criteria for Seed Mixture Development

1. It is required that at least 50 percent (seeds/ft^2) of mixtures planted to introduced or native species for wildlife habitat consist of grasses, with the exception of introduced and native pollinator habitat mixes.

2. Increase seeds per square foot by 15 percent when dormant or frost seeding occurs.

3. Refer to Table 1 for the recommended seeding rates for the most commonly used introduced grasses, legumes and native grasses. Additional approved species can be found in Wisconsin Agronomy Technical Notes 5 and 6. Use of species not listed in Wisconsin Agronomy Technical Notes 5 and 6 must be approved by the State Agronomist.

4. For solid native grass plantings, refer to Section V.E.4. of this standard.

5. Refer to Wisconsin Agronomy Technical Notes 5 and 6 for suggested monoculture seeding recommendations, grass mixtures and seeding rate adjustments for overly aggressive species.

6. Rushes and sedges can be substituted for grasses where wet soil conditions exist. Seed mixture design requirements are the same as for grasses.

7. Native Grass, Forb and Legume Plantings

   a. Basic Prairie Plantings

      A minimum of 3 grasses seeded at a minimum total rate of 20 grass seeds per square foot, and a minimum of 3 forbs and or legumes amounting to a minimum total rate of 2.0 seeds per square foot.

   b. Restoration of Native Prairie Plantings

      A minimum of 5 grasses consisting of a minimum total rate of 15 grass seeds per square foot, and a minimum of 10 forbs and at least one legume in the mixture amounting to a minimum total rate of 8 seeds per square foot.

   c. Native Pollinator Herbaceous Plantings

      At least 1 and a maximum of 2 bunch grass species seeded at a maximum total rate of 10 seeds per square foot, and a minimum of 9 forbs and/or legumes, 3 or more from each bloom period (early, mid, late) seeded at a minimum total rate of 30 seeds per square foot.

   d. Seeding Requirements for Untested Local Genotype Seed

      1) A minimum of 5 grasses, sedges, or rushes and a minimum of 10 forbs and at least 1 legume must be seeded.

      2) Seed will be planted at a minimum seeding rate of 50 seeds per square foot.

      3) Limit seeding rates so that one specie does not comprise of more than 20 percent of the total seeds per square foot. When a specie exceeds 20 percent of the required 50 seeds per square foot, the excess seed will be excluded from the calculation of the required 50 seeds per square foot.

      4) At least 25 seeds per square foot must be native grasses, sedges, or rushes and a minimum of 10 forbs and/or legume seeds per square foot must be seeded.For more details and examples of standard native grass, forb, and legume mixes, review Wisconsin Agronomy Technical Note 5.

8. Introduced Grass and Legume Plantings

   a. Wildlife Habitat Plantings

      A minimum of 2 grasses seeded at a minimum total rate of 70 grass seeds per square foot, and at least one legume seeded at a minimum total rate of 30 seeds per square foot.

   b. Introduced Pollinator Herbaceous Plantings

      At least 1 and a maximum of 2 bunch grasses seeded at a maximum total rate of 30 seeds per square foot, and a minimum of 2 legumes seeded at a minimum total rate of 40 seeds per square foot.

      For more details and examples of standard introduced grass and legume mixes, refer to Wisconsin Agronomy Technical Note 6.

C. Additional Criteria to Reduce Soil Erosion, Sedimentation, and Improve Water Quality

1. The potential for soil erosion (sheet and rill or wind) during establishment or cover enhancement activities shall be assessed using the current water or wind erosion prediction technology.

2. The appropriate sheet and rill erosion control practices necessary to achieve the planned soil loss objectives shall be included in the planting plan (i.e., Contour Farming, No Till Planting, Cover Crop).

3. Additional conservation practices, such as Grassed Waterways and Grade Stabilization

Structures, shall be planned as needed to address erosion risk identified for the site.

D. Additional Criteria for Improving Air Quality

1. To control dust in perennial crop systems such as orchards, vineyards, berries, and nursery stock, vegetation established using this standard shall provide full ground coverage in the alleyway and headlands.

2. Carbon sequestration plantings established utilizing this standard shall result in a positive CO_2 equivalent value as determined by utilizing the current approved carbon prediction technology.

E. Additional Criteria for Enhancing Wildlife Habitat

1. Grasses, forbs, shrubs, and/or legumes shall be planted in a diverse mix to promote biodiversity and meet the needs of the wildlife species targeted for management.

2. Physical disturbances during the nesting season (May 15 to August 1) or other identified use period by wildlife species in the conservation plan shall be limited to the extent practicable.

3. The long-term objectives of the land user and the needs of the wildlife species targeted for management shall be considered in planning the vegetative cover.

4. A mixture of grasses and forbs will provide the most diversity for a wide range of animals. Solid stands of native and introduced grass plantings can provide additional benefits for certain wildlife species depending on the wildlife habitat plan that is specie-specific. Single or multiple specie grass stands can provide added protection from predators, improve concealment zone characteristics, and the vegetation may be more persistent during the winter season. Planned introduced grass plantings consisting of one specie must be approved by the State Agronomist or State Biologist prior to seeding. Refer to Table 1 for recommended seeding rates.

5. Standard seed mixtures developed as a result of the Conservation Reserve Program (CRP) rules will meet the requirements of this standard when utilized to develop seed mixtures for CRP contracts. Refer to the most current Wisconsin Farm Service Agency 2-CRP handbook for CRP standard mixtures.

6. The timing and method of prescribed burning where utilized shall be planned to enhance the growth and vigor of target species and to comply with the requirements of Wisconsin NRCS Field Office Technical Guide, Section IV, (WI FOTG), Conservation Practice Standard 338, Prescribed Burning.

F. Additional Criteria to Improve Soil Quality

The Soil Conditioning Index calculated for the site shall achieve a positive value. Plantings will be established and maintained to produce high volumes of organic materials.

G. Additional Criteria to Manage Plant Pests

In perennial crop systems such as orchards, vineyards, berries, and nursery stock, permanent vegetative cover shall be established and managed to attract beneficial species which enhance integrated pest management (IPM) strategies in effect for control of target pest species.

H. Additional Criteria for Promoting Pollination

Select plants that provide the most pollen for pollinator species targeted by the management plan. See Wisconsin Biology Technical Note 8, Pollinator Biology and Habitat, for more detailed information.

I. Additional Criteria to Evaluate the Quality of Conservation Cover Established by Plant Community Succession

If native cover establishes through natural succession in an existing plant community, a certified conservation planner may evaluate the cover to determine if the cover:

- contains grass and legume/forb diversity equal or greater than NRCS recommended seed mixtures;
- meets the intended purpose and adequately addresses all identified resource concerns;
- meets the decision maker's objective;
- meets the rules and/or requirements of the program(s) in effect on the site;

- cover consisting of plants classified as *noxious weeds* or *invasive species* as defined by Wisconsin Job Sheet 397, Maintenance on Established CRP, are managed and controlled according to Job Sheet 397 specifications; and
- cover consisting of plants classified as noxious weeds or invasive species by applicable Wisconsin state and local law, are adequately contained.

Existing cover that is determined to meet all of these criteria can be considered to meet the requirements of this standard.

If non-native cover establishes through succession of the plant community, a certified conservation planner may evaluate the site to determine if the existing cover meets the intended purpose and adequately addresses soil erosion and water quality resource concerns identified for the site using the following criteria:

- contains plant density equal to or greater than the NRCS recommended seed mixture,
- meets the intended purpose by adequately reducing the delivery of nutrients and/or sediments to the area being protected,
- meets the decision makers objective,
- converting the plant stand back to the original cover is impractical and will not enhance the performance of the practice for the intended purpose,
- meets the rules and/or requirements of the program(s) in effect on the site, and
- cover consisting of plants classified as noxious weeds or invasive species by applicable Wisconsin state and local law are being adequately contained.

Existing cover that is determined to meet all of these criteria can be considered to meet the requirements of this standard for the purpose of reducing delivery of sediment and nutrients.

VI. Considerations

Additional recommendations relating to design that may enhance the use of, or avoid problems with this practice, but are not required to ensure its basic conservation functions are as follows.

A. This practice may be used to promote the conservation of wildlife species in general, including threatened and endangered species. Where wildlife is an objective, the food and cover value of the planting shall be planned to reflect the habitat needs of the wildlife species targeted for management.

B. On sites where annual or introduced cool season perennial grasses are an expected weed problem, it may be necessary to postpone or eliminate nitrogen fertilizer application until the planted species are well established.

C. Where applicable, this practice may be used to conserve and stabilize archeological and historic sites.

D. Consider rotating management and maintenance activities (e.g., mow only a portion each year) throughout the managed area to maximize cover diversity.

E. Consider establishing a native plant community that is adapted to the site conditions and which meets landowner objectives. Use native species when appropriate for the identified resource concern and management objective.

F. In perennial crop systems such as orchards, vineyards, and berries, flowering forbs and legumes may be included in the seed mixture to attract and hold natural pollinator insects.

G. Consider the use of local genotype seed when native plantings are planned in the vicinity of rare remnant prairies.

H. Due to the propagation and growth characteristics of grasses, grasses will have the tendency to pre-dominate and crowd out forbs and forb/legumes in diverse plantings. Seed counts per square foot above recommended minimums may lead to excessive competition and poor establishment of some species. It is strongly suggested that the seed count minimums not exceed more than 25 percent of the minimum seeds per square foot for grasses.

I. Consider reseeding erosive fields in small plots, alternating strips established on the contour over a period of years, or the use of no-till planting. Use the current approved erosion prediction tools to evaluate establishment alternatives.

J. Consider testing non-certified locally harvested native grass or forb seed genotypes when establishing native plant communities.

VII. Plans and Specifications

Prepare plans and specifications for each site or management unit according to the Criteria, Considerations, and Operations and Maintenance described in this standard.

The following elements will be addressed in the plan to meet the intended purpose:

- site preparation,
- fertilizer application (if applicable),
- seedbed preparation,
- methods of seeding/planting,
- time of seeding/planting,
- selection of species,
- type of legume inoculant used (if applicable),
- seed germination test results,
- seeding rate (adjusted based on PLS calculations),
- supplemental water for plant establishment (if applicable),
- protection of plantings (if applicable),
- weed control activities during the establishment period.

Specifications shall be recorded using Wisconsin Job Sheets 134, How to Establish and Maintain Introduced Grasses and Legumes; and 135, How to Establish and Maintain Native Grasses, Forbs and Legumes; and Job Sheet 130, Pollinator-Friendly Habitat.

VIII. Operation and Maintenance

Mowing or herbicide applications shall be used as necessary to control competitive weeds. Mowing should be done when introduced grasses reach 6-8 inches tall and before the weeds develop matured seed. The residue from mowing shall be uniformly distributed or removed as necessary to avoid smothering the new seedlings. Native warm season grasses should be mowed no lower than 7 inches.

If wildlife habitat enhancement is a purpose, practice maintenance activities shall not disturb cover during the nesting period (May 15 to August 1) for desired wildlife species. Exceptions shall be made to spot treat necessary weed invasions prior to them setting seed.

Maintenance measures must be adequate to control the establishment and spread of noxious weeds and other invasive species.

To benefit insect food sources for grassland nesting birds, spray or other means to control noxious weeds shall be done on a “spot basis” to protect forbs and legumes that benefit native pollinators and other wildlife.

IX. References

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section III, Conservation Management Systems.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications.

University of Wisconsin Extension Publication A1525, Perennial Forage Crop Variety Update for Wisconsin.

USDA, NRCS Wisconsin Agronomy Technical Note 5, Establishing and Maintaining Native Grasses, Forbs and Legumes.

USDA, NRCS Wisconsin Agronomy Technical Note 6, Establishing and Maintaining Introduced Grasses and Legumes.

USDA, NRCS Wisconsin Biology Technical Note 8, Pollinator Biology and Habitat.

USDA, NRCS Wisconsin Job Sheet 130, Pollinator-Friendly Habitat.

USDA, NRCS Wisconsin Job Sheet 134, How To Establish and Maintain Introduced Grasses and Legumes.

USDA, NRCS Wisconsin Job Sheet 135, How to Establish and Maintain Native Grasses, Forbs, and Legumes.

USDA, NRCS Wisconsin Job Sheet 397, Maintenance on Established CRP.

University of Wisconsin Cooperative Extension, Invasive Plant Management in CRP Fields: http://ipcm.wisc.edu/Publications/tabid/54/Default.aspx.

USDA, Farm Service Agency, Agricultural resource Conservation Program 2-CRP Handbook, and Wisconsin Amendments.

X. Definitions

Actual Adjusted Seeding Rates (V.A.1.) – an increase in seeds per square foot or pounds per acre, when the PLS is less than 100 percent.

Certified Seed (V.A.1.) – Seed that meets the standards established by the designated official seed certifying agency for the purpose of ensuring species/variety, species/varietal purity and mechanical quality. The Wisconsin Crop Improvement Association is the official seed certifying agency for Wisconsin.

Frost Seeding (V.A.2.) – Broadcast seeding in February to mid-March during the active freezing and thaw cycle onto existing herbaceous stands or onto seedbeds prepared the previous fall.

Introduced Species (V.A.2.) – Plant species that historically would not have been found in North America until they were brought here by travelers from other parts of the world. This would include smooth bromegrass and alfalfa. Some of these species may have a wide distribution such as Kentucky bluegrass.

Invasive species (VI.F.) – Non-native species that have the ability to spread rapidly and overwhelm other plants, causing economic and environmental harm, or harm to human and animal health.

Native Species (V.A.3.) – Plants that have been identified as historically present in North America, such as big bluestem or green needle-grass.

Non-Certified Seed (V.A.1.) – Seed that is grown, processed, tested and labeled for species/variety and mechanical quality factors, but is not certified by an official seed certifying agency.

Noxious weeds (VI.F.) – A plant that has been designated by a county, state, or national agricultural authorities as one that is injurious to agricultural and horticultural crops, natural habitats, human, and or livestock if left uncontrolled. Most noxious weeds are introduced species.

Pure Live Seed (PLS) (V.A.1.) – PLS is a means of expressing seed quality, based on the percentage of seed in a seed lot that is both pure and viable. PLS is calculated by multiplying the percentage of total viable seed (germination + hard seed + dormant seed) by the percentage of pure seed divided by 100.

Untested (V.A.1.) – Seed that has no assurances of testing for species/variety and mechanical quality, i.e., species/variety purity, inert matter, other crop or weed seeds and germination potential. Untested seed legally cannot be labeled.

Table 1
Common Species and Recommended Seeding Rates

Common Name	Scientific Name	Moisture Regime	Single Species Seeding Rate (PLS)		
Introduced Grasses			**Lbs./Ac.**	**Seeds/Lb.**	**Seeds/Ft^2/Lb./ Ac.**
Italian or Annual Ryegrass	Lolium perenne L. ssp. multiflorum	DM, M, WM	20	227,000	5.2
Kentucky Bluegrass	Poa pratensis	D, DM, M, WM, W	8	2,177,000	50
Orchard Grass	Dactylis glomerata L.	D, DM, M, WM	10	653,000	15
Perennial Ryegrass	Lolium perenne	DM, M, WM	20	227,000	5.2
Redtop*	Agrostis gigantea	M, WM, W	4	4,990,000	114.5
Smooth Bromegrass*	Bromus inermis	D, DM, M, WM	20	136,000	3.1
Tall Fescue*	Schedonorus arundinaceus	D, DM, M, WM	12	227,000	5.2
Timothy	Phleum pratense	DM, M, WM, W	8	1,230,000	28.2
Native Grasses			**Lbs./Ac.**	**Seeds/Lb.**	**Seeds/Ft^2/Lb./ Ac.**
Big Bluestem*	Andropogon gerardii	D, DM, M, WM	11	165,000	3.8
Canada Wild Rye	Elymus canadensis	DM, M, WM	12	83,200	1.9
Fowl Managrass*	Glyceria striata	WM, W	0.5	2,560,000	58.7
Indian Grass*	Sorghastrum nutans	D, DM, M, WM, W	10	192,000	4.4
Little Bluestem	Schizachyrium scoparium	D, DM, M	8	240,000	5.5
Prairie Cordgrass	Spartina pectinata	M, WM, W	8	105,600	2.4
Prairie Dropseed	Sporobolus heterolepis	D, DM, M	3	256,000	5.9
Prairie June Grass	Koeleria macrantha	D, DM, M	0.5	2,308,672	53
Sideoats Grama	Bouteloua curtipendula	D, DM, M	8	127,000	2.9
Switchgrass*	Panicum virgatum	D, DM, M, WM, W	7	389,000	8.9
Virginia Wild Rye	Elymus virginicus	M,WM, W	17	67,200	1.5
Legumes			**Lbs./Ac.**	**Seeds/Lb.**	**Seeds/Ft^2/Lb./ Ac.**
Alfalfa	Medicago sativa	D, DM, M	12	219,000	5.0
Alsike Clover	Trifolium hybridum	M, WM, W	3	680,000	15.6
Birdsfoot Trefoil	Lotus corniculatus	DM, M, WM, W	7	375,000	8.6
Red Clover	Trifolium pratense	DM, M, WM	10	275,000	6.3
White Ladino Clover	Trifolium repens	DM, M, WM	3	871,650	20
Rush			**Oz./Ac.**	**Seeds/Oz.**	**Seeds/Ft.^{2}/Oz./ Ac.**
Wool Grass	Scirpus cyperinus	W	1.5	1,700,000	39

*Species with an asterisk can be seeded individually at the recommended pure stand rates based on Pure Live Seeds (PLS). Planned introduced single specie grass plantings require prior approval from the State Agronomist or State Biologist (V.E.4.)

Seeds per square foot for a particular specie can be calculated by multiplying the number of seeds per pound of specie by the rate of the specie in pound(s) per acre divided by 43,560 square feet.

Species not listed in the above table can be used when developing custom mixtures.

Table 2
Sample Seed Mix for Basic Dry Mesic Prairie
(Seed Calculator Code 327-2*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Purple Prairie Clover	Dalea purpurea	2.00	0.9
Bergamot	Monarda fistulosa	1.00	1.8
Yellow Cone Flower	Ratibida pinnata	1.00	0.6
Big Bluestem	Andropogon gerardii	8.00	1.9
Little Bluestem	Schizachyrium scoparium	24.00	8.3
Indian Grass	Sorghastrum nutans	16.00	4.4
Switchgrass	Panicum virgatum	8.00	4.5
Sideoats Grama	Bouteloua curtipendula	16.00	2.9

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 3
Sample Seed Mix for Basic Mesic Prairie
(Seed Calculator Code 327-3*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Yellow Cone Flower	Ratibida pinnata	1.00	0.6
Black-Eyed Susan	Rudbeckia hirta	1.00	2.2
Bergamot	Monarda fistulosa	1.00	1.8
Big Bluestem	Andropogon gerardii	16.00	3.8
Switchgrass	Panicum virgatum	8.00	4.5
Little Bluestem	Schizachyrium scoparium	20.00	6.9
Indian Grass	Sorghastrum nutans	16.00	4.4
Canada Wild Rye	Elymus canadensis	16.00	1.9

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 4
Sample Seed Mix for Basic Wet Mesic Prairie
(Seed Calculator Code 327-4*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Bergamot	Monarda fistulosa	1.00	1.8
Yellow Cone Flower	Ratibida pinnata	1.00	0.6
New England Aster	Symphyotrichum novae-angliae	1.00	1.6
Switchgrass	Panicum virgatum	16.00	8.9
Prairie Cordgrass	Spartina pectinata	8.00	1.2
Big Bluestem	Andropogon gerardii	24.00	5.8
Virginia Wild Rye	Elymus virginicus	16.00	1.5
Indian Grass	Sorghastrum nutans	16.00	4.4

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 5
Sample Seed Mix for Dry Mesic Prairie Restoration
(Seed Calculator Code 327-7*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Prairie Cinquefoil	Potentilla arguta	0.25	1.1
Leadplant	Amorpha canescens	1.00	0.4
Silky Aster	Symphyotrichum sericeum	1.00	1.3
Purple Prairie Clover	Dalea purpurea	3.00	1.4
Rough Blazing Star	Liatris aspera	0.50	0.2
Roundheaded Bushclover	Lespedeza capitata	3.00	0.8
Bergamot	Monarda fistulosa	1.00	1.8
Yellow Cone Flower	Ratibida pinnata	1.00	0.6
Stiff Goldenrod	Oligoneuron rigidum	1.00	1.1
Spiderwort	Tradescantia ohiensis	1.00	0.2
Little Bluestem	Schizachyrium scoparium	24.00	8.3
Indian Grass	Sorghastrum nutans	8.00	2.2
Prairie June Grass	Koeleria macrantha	2.00	6.6
Prairie Dropseed	Sporobolus heterolepis	2.00	0.7
Switchgrass	Panicum virgatum	4.00	2.2
Sideoats Grama	Bouteloua curtipendula	24.00	4.4

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 6
Sample Seed Mix for Mesic Native Prairie Restoration
(Seed Calculator Code 327-8*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Yellow Cone Flower	Ratibida pinnata	0.50	0.3
Black-Eyed Susan	Rudbeckia hirta	0.50	1.1
Sky Blue Aster	Symphyotrichum oolentangiense	0.50	0.9
Ox-Eye Sunflower	Heliopsis helianthoides	1.00	0.1
Bergamot	Monarda fistulosa	0.50	0.9
Culvers Root	Veronicastrum virginicum	0.25	4.3
Purple Prairie Clover	Dalea purpurea	1.00	0.5
Rosinweed	Silphium integrifolium	1.00	0.1
Prairie Blazing Star	Liatris pycnostachya	1.00	0.3
New England Aster	Symphyotrichum novae-angliae	0.50	0.8
Big Bluestem	Andropogon gerardii	16.00	3.8
Switchgrass	Panicum virgatum	8.00	4.5
Little Bluestem	Schizachyrium scoparium	24.00	8.3
Canada Wild Rye	Elymus canadensis	8.00	1.0
Indian Grass	Sorghastrum nutans	16.00	4.4

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 7
Sample Seed Mix for Wet Mesic Prairie Restoration
(Seed Calculator Code 327-9*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Black-Eyed Susan	Rudbeckia hirta	1.00	2.2
Bergamot	Monarda fistulosa	1.00	1.8
Yellow Cone Flower	Ratibida pinnata	1.00	0.6
Prairie Blazing Star	Liatris pycnostachya	1.00	0.4
Common Ironweed	Vernonia fasciculata	1.00	0.5
Cupplant	Silphium perfoliatum	4.00	0.1
Golden Alexanders	Zizia aurea	1.00	0.3
Great St. John's Wort	Hypericum ascyron	0.25	1.1
White Wild Indigo	Baptisia alba	1.50	0.1
New England Aster	Symphyotrichum novae-angliae	1.00	1.6
Switchgrass	Panicum virgatum	16.00	8.9
Prairie Cordgrass	Spartina pectinata	4.00	0.6
Big Bluestem	Andropogon gerardii	20.00	4.8
Canada Wild Rye	Elymus canadensis	16.00	1.9
Indian Grass	Sorghastrum nutans	12.00	3.4

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 8
Sample Seed Mix for Native Pollinator Seeding for Dry Mesic Sites
(Seed Calculator Code 327-12*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Little Bluestem	Schizachyrium scoparium	16	5.5
Sideoats Grama	Bouteloua curtipendula	16	2.9
Illinois Tick Trefoil	Desmodium illinoense	5	0.5
Spiderwort	Tradescantia ohiensis	5	0.9
Purple Prairie Clover	Dalea purpurea	6	2.7
Yellow Coneflower	Ratibida pinnata	1	0.6
Prairie Blazing Star	Liatris pycnostachya	3	0.8
Rattlesnake Master	Eryngium yuccifolium	6	1.1
Showy Goldenrod	Solidago speciosa	4	8.7
Stiff Goldenrod	Oligoneuron rigidum	3	3.2
Smooth Blue Aster	Symphyotricum laeve	2	2.2
Prairie Cinquefoil	Potentilla arguta	2	9.2

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 9
Sample Seed Mix for Native Pollinator Seeding for Mesic Sites
(Seed Calculator Code 327-13*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Little Bluestem	Schizachyrium scoparium	16	5.5
Sideoats Grama	Bouteloua curtipendula	16	2.9
Foxglove Beardtongue	Penstemon digitalis	4	10.6
Spiderwort	Tradescantia ohiensis	6	1.1
Golden Alexanders	Zizia aurea	6	1.5
Yellow Coneflower	Ratibida pinnata	1	0.6
Purple Prairie Clover	Dalea purpurea	6	2.7
Prairie Blazing Star	Liatris pycnostachya	4	1.1
Rattlesnake Master	Eryngium yuccifolium	6	1.1
New England Aster	Symphyotrichum novae-angliae	3	4.8
Stiff Goldenrod	Oligoneuron rigidum	3	3.2
Smooth Blue Aster	Symphyotrichum laeve	3	3.3

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 10
Sample Seed Mix for Native Pollinator Seeding for Wet Mesic Sites
(Seed Calculator Code 327-14*)

Common Name	Scientific Name	PLS Oz/Ac	Seeds/Square Foot
Big Bluestem	Andropogon gerardii	16	3.8
Indiangrass	Sorghastrum nutans	16	4.4
Foxglove Beardtongue	Penstemon digitalis	4	10.6
Spiderwort	Tradescantia ohiensis	6	1.1
Golden Alexanders	Zizia aurea	5	1.3
Yellow Coneflower	Ratibida pinnata	1	0.6
Prairie Blazing Star	Liatris pycnostachya	3	0.8
Rattlesnake Master	Eryngium yuccifolium	6	1.1
New England Aster	Symphyotrichum novae-angliae	3	4.8
Blue Vervain	Verbena hastata	4	8.5
Common Ironweed	Vernonia fasciculata	3	1.4
Cupplant	Silphium perfoliatum	3	0.1

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 11
Solid Native Grass Plantings

Seed Calculator Code	Common Name	Scientific Name	Pounds PLS per Acre	Seeds per Square Foot	Moisture Regime
327-15A	Switchgrass	Panicum virgatum	7.0	63	DM-WM
327-15B	Big Bluestem	Andropogon gerardii	11.0	42	
327-15C	Indiangrass	Sorghastrum nutans	10.0	44	

Table 12
Wildlife Habitat Mixes

Seed Calculator Code*	Mixtures	Pounds PLS per Acre	Seeds per Square Foot	Moisture Regime
327-16A	Timothy	2.5	71	DM, M
	Smooth Bromegrass	3.0	9	
	Alfalfa	6.0	30	
327-16B	Timothy	2.0	56	M, WM, W
	Orchardgrass	2.0	30	
	Red Clover	5.0	32	
327-16C	Timothy	2.0	56	DM, M
	Orchardgrass	2.0	30	
	Alfalfa	6.0	30	
327-16D	Timothy	2.5	71	M, WM
	Smooth Bromegrass	3.0	9	
	Red Clover	5.0	32	
327-16E	Timothy	2.0	56	M, WM
	Smooth Bromegrass	2.0	6	
	Orchardgrass	1.0	15	
	Red Clover	5.0	32	
	White Ladino Clover	0.5	10	
324-16F	Timothy	2.0	56	M, WM
	Orchardgrass	2.0	30	
	Red Clover	5.0	32	
	White Ladino Clover	0.5	10	
327-16G	Timothy	2.0	56	DM, M, WM
	Orchardgrass	2.0	30	
	Birdsfoot Trefoil	4.0	34	
327-16H	Tall Fescue	3.0	16	M, WM
	Red Clover	4.0	25	
	White Ladino Clover	1.0	20	
	Timothy	2.0	56	

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Table 13
Introduced Pollinator Habitat Mixes

Seed Calculator Code*	Mixtures	Pounds PLS per Acre	Seeds per Square Foot	Moisture Regime
327-17A	Timothy	0.5	14	DM, M
	Orchardgrass	1.0	15	
	Alfalfa	4.0	20	
	White Ladino Clover	1.5	30	
327-17B	Tall Fescue	3.0	16	WM, W
	Perennial Ryegrass	3.0	16	
	Red Clover	4.0	25	
	Alsike Clover	1.5	23	

*These codes represent the mixtures used in the Wisconsin Seed Calculator.

Figure 1

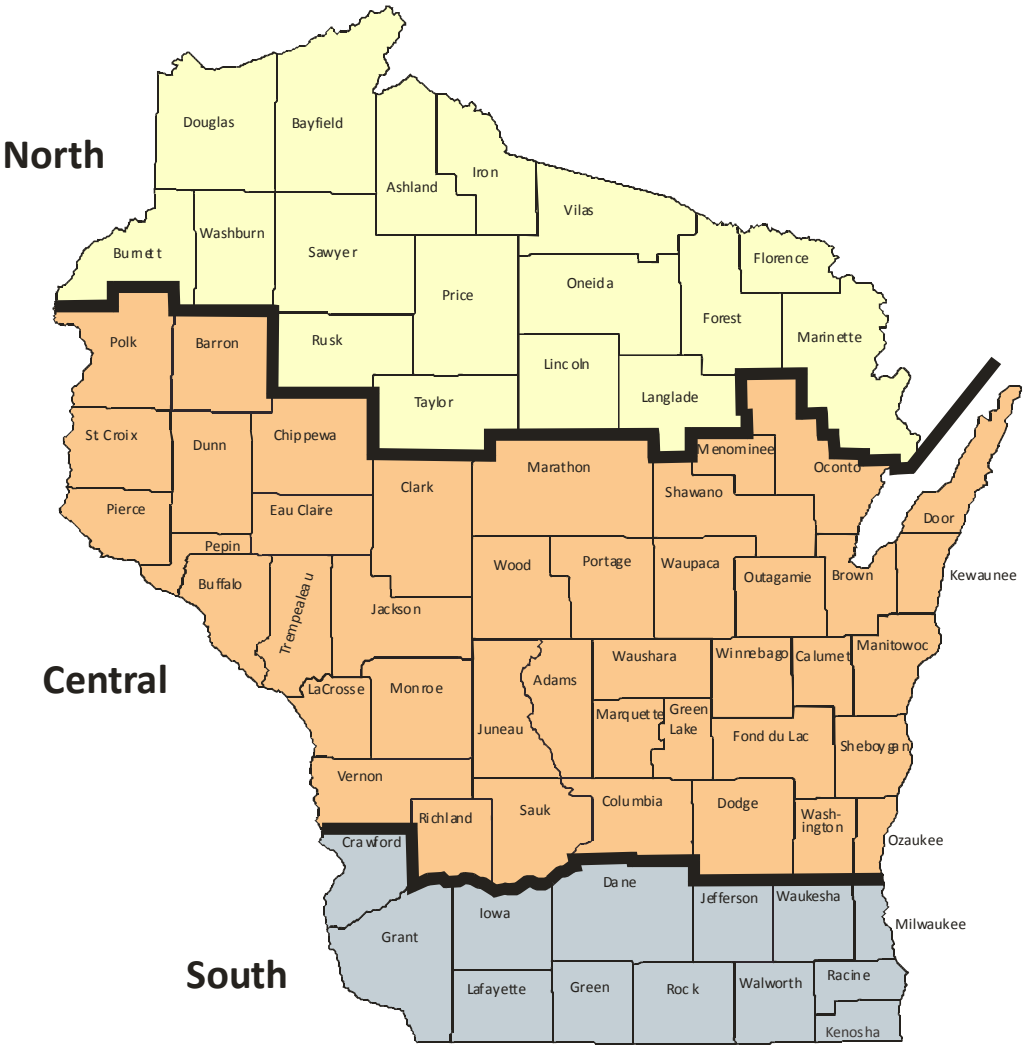

Table 14
Seeding Date/Ranges for Native Mixtures and Companion Crops

Zone	Spring Seeding	Fall Dormant Seeding
North	Thaw - 7/15	10/8 - Freeze Up
Central	Thaw - 6/30	10/15 - Freeze Up
South	Thaw - 6/30	10/20 - Freeze Up

Table 15
Seeding Date/Ranges for Introduced Grasses and Legumes and Companion Crops

Planting Zone	Spring	Late Summer	Dormant
North	5/1 - 6/15	7/15 - 8/10	11/1 - Freeze up
Central	4/15 - 6/1	8/1 - 8/21	11/1 - Freeze up
South	4/1 - 5/15	8/7 - 8/29	11/1 - Freeze up

Refer to Section V.A.2. for frost seeding recommendations.