

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
CONSERVATION COVER**

(Ac.)

CODE 327

DEFINITION

Establishing and maintaining permanent vegetative cover.

PURPOSE

This practice is applied to support one or more of the following (resource concerns in parenthesis):

- Reduce soil erosion and sedimentation. (SOIL EROSION - Sheet, Rill, & Wind Erosion)
- Improve water quality. (WATER QUALITY DEGRADATION: Excess nutrients in surface and ground waters; and, WATER QUALITY DEGRADATION – Excessive sediment in surface waters)
- Improve air quality. (AIR QUALITY IMPACTS - Emissions of Particulate Matter - PM - and PM Precursors; and, AIR QUALITY IMPACTS - Emissions of Greenhouse Gases – GHGs)
- Enhance wildlife, pollinator and beneficial organism habitat. Resource Concern (FISH AND WILDLIFE – INADEQUATE HABITAT – Habitat Degradation)
- Improve soil quality. (SOIL QUALITY DEGRADATION – Organic Matter Depletion)

CONDITION WHERE PRACTICE APPLIES

The practice applies on all lands needing permanent herbaceous vegetative cover. The practice does not apply to plantings for forage production or to critical area plantings. The practice can be applied on a portion of a field.

CRITERIA

General Criteria Applicable to All Purposes

Species shall be adapted to soil, ecological sites, and climatic conditions. Noxious and invasive species shall not be used.

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

Native species (grasses, forbs, and/or legumes), other than the species planted, that encroach the planting and meet the intended purpose of the practice and meet the landowner's objectives will be allowed.

Seeding rates and methods shall be adequate to accomplish the planned purpose. Certified or source identified seed shall be used where possible.

Planting dates, planting methods and care in handling and planting of the seed or planting stock shall ensure that planted materials have an acceptable rate of survival.

Site preparation shall be sufficiently adequate to eliminate weeds and provide soil conditions for consistent seed depth for establishment and growth of selected species.

Timing and use of equipment shall be appropriate for the site and soil conditions.

Pesticides used for establishment and management shall be used according to label instructions and all applicable federal, state, and local regulations.

Plant nutrients shall be applied following the specifications in the *Fertilizer and Lime Requirements* section.

Additional Criteria to Reduce Soil Erosion and Sedimentation

The amount of plant biomass and cover needed to reduce wind and water erosion to the planned soil loss objective shall be determined using the current approved wind and/or water erosion prediction technology.

No-till seeding methods are preferred where erosion concerns are present.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current versions of standards, contact the Natural Resources Conservation Service at <http://www.il.nrcs.usda.gov/>.

**NRCS, ILLINOIS
April 2015**

327-2

Nurse crops are required for seedlings in tilled seedbeds where severe erosion would be expected during the establishment period.

Additional Criteria for Improving Air Quality

In perennial crop systems such as orchards, vineyards, berries and nursery stock, vegetation established shall provide full ground coverage in the alleyway during mowing and harvest operations.

To sequester carbon, plant cover established will result in a positive CO₂ equivalent value when determined by the current approved carbon prediction technology, if available.

Additional Criteria for Enhancing Wildlife Habitat and Pollinator Habitat

Where wildlife management is an objective, use Biology Technical Note No IL-18 to determine how the food and cover value of the planting can be enhanced.

Grasses, forbs, shrubs and/or legumes shall be planted in a diverse mix to promote bio-diversity and meet the needs of the targeted species of wildlife. It is recommended that diverse mixtures include species beneficial for pollinators. Pollinator habitat areas will consist of a sufficient number of plant species to sustain the target pollinators throughout the growing season. Specific measures to benefit pollinators can be found in Illinois Biology Technical Note Number 23, "Pollinator Biology and Habitat."

Monoculture seedlings are allowed for special purposes such as nesting and escape cover or herbaceous fire breaks when included in a wildlife management plan approved by an Illinois Department of Natural Resources (IDNR) or NRCS wildlife biologist. Native grass monocultures should be planted at a seeding rate of 30 PLS seeds per square foot unless otherwise specified within the wildlife management plan.

Additional Criteria to Improve Soil Quality

Plants will be selected on the basis of producing high volumes of organic material to maintain or improve soil organic matter. The established cover shall be sufficient to provide a positive Soil Condition Index (SCI) value.

CONSIDERATIONS

The practice may be used to promote the conservation of wildlife species in general, including threatened and endangered species.

NRCS, ILLINOIS
April 2015

On sites where annual grasses are an expected weed problem, it may be necessary to postpone nitrogen fertilizer application until the planted species are well established.

Rotate management and maintenance activities (e.g. mow only one-fourth or one-third of the area each year) throughout the managed area to maximize spatial and temporal diversity. See Illinois NRCS Early Successional Habitat Management/Development (Practice Code 647).

Consider using native species that are appropriate for the identified resource concern and management objective. Consider trying to re-establish the native plant community for the site.

Consider the long-term objectives of the land user and the needs of declining wildlife species, including threatened and endangered species in the selection of vegetative cover. The use of native plant species is encouraged for all cover situations.

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

Additional conservation practices, such as grassed waterways, may be needed for complete erosion control.

Established plant communities usually benefit from periodic burning. Burning can stimulate growth of some species by reducing unwanted competition from weedy plants and excessive plant residue and therefore helps to maintain plant community diversity. (Refer to Prescribed Burning, Practice Code 338).

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. They shall include, but are not limited to:

- recommended species,
- seeding rates and dates,
- establishment procedures,
- other management actions needed to ensure an adequate stand

Specifications shall be recorded using Job Sheet 327, narrative statements in the conservation plan, and the 327 Calculator spreadsheet.

All specifications shall be consistent with Federal, State, and local regulations.

ESTABLISHMENT OF PERMANENT VEGETATIVE COVER

Seeding Periods

Seeding dates are listed in Table 1. The dates listed in the table are based on long-term averages and may be extended by two weeks by the district conservationist. Extension of these deadlines shall be based on both favorable moisture and temperature for seed germination.

Soil Testing

Soil tests will be taken to the 7-inch depth for newly retired cropland and existing stands of permanent cover greater than five years old if no current soil test is available. Soil tests are considered current if they are 4 years old or less.

Fertilizer and Lime Requirements

The minimum soil test pH for all seedings is 5.5. Where the soil pH level is below 5.5, apply limestone at rates needed to increase soil pH to 6.2 or 3 tons/acre, whichever is less. Lime application rates will be calculated according to the procedures described in the Illinois Agronomy Handbook. Application rates greater than 2 tons/acre will be incorporated with tillage.

Phosphorus, potassium, and lime are not normally recommended for plantings consisting of native grasses, forbs, and legumes. Soil tests shall be taken for native plantings in order to select species adaptable to the pH of the site. Nitrogen is not recommended where native species are planned especially during the year of establishment. If weed control is achieved and nitrogen is still needed, apply 50-lbs. actual nitrogen per acre during active growth, after the establishment year.

Minimum Levels for Nitrogen, Phosphorus, and Potassium for Introduced Grasses and Legumes

The minimum soil test Phosphorus (Bray P1 or Mehlich 3) is 15 pounds per acre. For fields with soil test Phosphorus levels below 15 pounds per acre, apply 60 pounds of P_2O_5 per acre. The minimum soil test Potassium is 150 pounds per acre. For fields with soil test Potassium levels below 150 pounds per acre, apply 200 pounds of K_2O per acre.

Nitrogen is not recommended where legumes are included in the seed mixture. For cool season seed

mixtures consisting of grasses only, apply 30 lbs./ac of actual nitrogen at planting.

Nitrogen may be omitted where:

- Grass seedings follow within nine months of the harvest of a legume crop or,
- Grass seedings are sown into soils with at least 2 percent organic matter.

Seed Quality

All seed shall comply with Illinois Seed and Weed Laws and originate from the United States or Canada.

Seed rates will be based on Pure Live Seed (PLS) per acre. Computation of Pure Live Seed will be based on the following formula:

$$PLS = \frac{(\% \text{ germination} + \% \text{ dormant seed}) \times \% \text{ purity}}{100}$$

Germination tests are required for all warm and cool season grasses and legumes (excluding companion crops). Germination tests may not be older than 12 months at time of seeding excluding the month of testing. Germination tests are not required for native forbs

Legume Inoculation

Legume seeds shall be treated with a pure culture of nitrogen fixing bacteria prepared specifically for the species being seeded. Where more than one legume is included in the seed mixture, inoculate each species separately. A sticker, as recommended by the inoculant manufacturer, will be used to secure the bacteria to the seed. Refer to Illinois Agronomy Technical Note Number 20 for guidance.

Uncoated seed pre-inoculated greater than 60 days will be re-inoculated. Pre-inoculated seed that has been coated must be seeded within 12 months of inoculation, otherwise re-inoculate. In no cases shall inoculum be used after the expiration date including inoculum that is included with the seed as a pre-treatment.

Legumes not pre-inoculated will be inoculated within 24 hours of seeding.

Inoculation of native legumes is recommended when commercial inoculum is available.

Companion (Nurse) Crop**Introduced Grasses and Legumes**

For spring seedings, oats shall be seeded at a rate of one bushel/acre to reduce soil erosion and suppress weed competition. The oats shall be clipped prior to seed head emergence (late boot stage) to prevent further competition with the new permanent cover. For seedings planned for the late summer to early fall period, a companion crop of wheat or cereal rye will be seeded at a rate of 20 lbs. /acre. An oat companion crop may be used for late summer if planted no later than 60 days prior to the first expected killing frost date. Expected first frost dates may be found in the FOTG, Section I-Climatic Data, most published soil surveys, and the Illinois Agronomy Handbook. Winter cereal crops will be mowed the following spring no later than the late boot stage. Companion crops shall not be allowed to form seeds.

Native Grasses, Forbs, and Legumes

Companion crops are usually not recommended for native warm season seedings. Where erosion or weed pressure is of concern, a broadcast or drilled companion crop of oats seeded at one bushel/acre may be used. Where a companion crop is used, mow by the late boot stage to prevent further competition with the new permanent cover and control weeds.

Temporary Cover

Temporary cover may be required to reduce potential weed and erosion problems where one of the following conditions exists:

- Fields with herbicide carry over.
- The planting is delayed due to unavailability of seed.
- The normal seeding period has passed.

The temporary cover shall be seeded as specified in Cover Crop (Practice Code 340). Consult with the appropriate specialist for species selection where concerns for herbicide carryover exist. Temporary cover crops will be mowed as many times as necessary in order to prevent seed formation.

Seeding equipment

Drills, rotary spreaders, or airflow spreaders may be used. Drills will be equipped with metering devices

designed for the seeds being sown. Chaffy seed will be seeded with drills equipped to sow bearded seed. Mix seed with a bulking material such as cracked corn or pelletized lime where rotary or airflow spreaders are used. Chaffy seed must be de-bearded where rotary or airflow equipment is used.

Seedbed preparation and seeding**Tilled Seedbeds**

Seedbeds will be tilled to a depth of at least 3 inches. The seedbed shall be reasonably smooth, friable, and firm prior to seeding.

Firm tilled seedbeds with a corrugated metal roller, cultipacker, or a cultimulcher with the tines disengaged. Perform all tillage operations across the general slope of the land where possible. Grass and legume seed shall be drilled to a maximum 1/4-1/2 inch depth. Small seeded species shall be planted no deeper than twice the seed diameter. Broadcast and airflow seedings are to be rolled with a corrugated metal roller, cultipacker, or a cultimulcher with the tines disengaged after planting.

No-till Seedings

Approved herbicides shall be applied to kill or suppress existing weed competition, where necessary. A drill designed for no-till planting shall be used to plant the seed to a maximum depth of 1/4-1/2 inch. Small seeded species shall be planted no deeper than twice the seed diameter. Where no-till seedings are performed into 60 percent ground cover the companion crop may be omitted

Frost Seedings

Frost seed only species approved for frost seeding as shown in Table 2 and Table 3. Frost seedings are not recommended where residue cover on the soil surface exceeds 50 percent ground cover.

Seed Mixtures**General Seed Mixtures**

Several seeding mixtures have been provided for common wildlife species. The mixtures may or may not be suitable for specific sites, other wildlife species of concern, or meet requirements of specific conservation programs. The native seed mixtures are designed to provide approximately 20-30 PLS seeds/square foot. Information in Tables 2 and 3 are

to be used to customize additional seeding mixtures as needed.

Seed Mixtures for Erosion Concerns (slopes 5 percent or greater)

Introduced cool season grass and legume seed mixtures:

Seed mixtures shall consist of grass and legume components. The grass component of the seed mixture shall consist of at least 3 lbs. PLS per acre. The legume component shall consist of at least 50 percent by weight of the total seed mixture. In no case, shall the legumes in mixtures be sown at rates less than the minimums found in Table 2.

Native grass and forb seed mixtures:

Seed rates shall provide a total of 30-40 PLS seeds per square foot. A minimum of 20 PLS seeds per square foot shall be comprised of grasses and 5 PLS seeds per square foot shall be forb species. Seed mixtures may be developed from data in Table 3.

Seed Mixtures for Wildlife Concerns (slopes less than 5 percent)

Introduced Grass and Legume Seed Mixtures:

Seed mixtures shall contain at least two grass and one legume species. The grass component of seed mixtures shall be at least 2 lbs. PLS per acre. Seed mixtures may be designed using data in Table 2.

Native grass and forb seed mixtures:

For seed mixtures consisting of native grasses and forbs/legumes, the grass component generally should provide at least 10-20 PLS seeds per square foot. A minimum of 5 PLS seeds per square foot shall be forb species. Seed mixtures may be designed using data in Table 3.

Monoculture plantings are allowed for special purposes such as nesting or escape cover if included in a wildlife management plan approved by an IDNR or NRCS wildlife biologist.

Seed Mixtures for Pollinator Concerns

Seeding mixes for pollinator habitats shall contain a minimum of 9 species of legume/forbs that are highly beneficial for pollinators. At least 3 species shall be species that bloom in each of the three parts of the growing season; early, mid and late. More than 9

species are recommended for increased diversity of food sources spread over the growing season. Introduced species shall not exceed 20 percent of the PLS mixture.

For non-erosive sites, the grass component will not be less than 5 seeds PLS/square foot of a non-sod forming grass species. The legume/forb component shall have a minimum of 15 seeds PLS/square foot. A total seeding rate of 20 to 40 seeds PLS/square foot is recommended. The grass component of the mix shall not be more than 40% of the total mix on a seeds per square foot basis. At least 9 of the principle species (3 in each season) shall have at least 0.3 seeds PLS per square foot or at least 4 ounces PLS per acre in the seeding mix except where a species would be deemed aggressive or potentially invasive.

For erosive sites, the grass component shall be a minimum of 20 PLS seeds per square foot. The legume/forb component must meet the above criteria for pollinator concerns for non-erosive sites. The total amount of seed for erosive sites will be higher than non-erosive sites with native seedings having 35-45 or more seeds per square foot. The high seeding rate required for pollinator habitat on erosive sites may be excessive in some situations which may prohibit a pollinator seeding.

Custom seed mixtures may be designed using Table 3 and pollinator information contained in the seeding calculator for the Restoration and Management of Declining Habitats Job Sheet (643JS) and Illinois Biology Technical Note No. 23 – Pollinator Biology and Habitat.

Weed and Companion Crop Control during the Establishment Year

To ensure survival of new seedings, weeds and companion crops shall be controlled during the establishment year. Native warm season species shall be mowed no shorter than 8 inches. Introduced cool season species shall be mowed no closer than 4 inches.

Managing the Succession of Existing Stands

Acreage seeded to grass and legume/forb mixtures often evolve to be dominated by perennial grasses over time and may be less effective in achieving the original wildlife objectives. To recreate the species and structural diversity of the original stand, suppression of the perennial grasses is often

327-6

required. Common methods of suppression are prescribed burning, tillage, and/or herbicide application. Guidance on the use of these methods can be found under Early Successional Habitat Development and Management (Practice Code 647). Interseeding with additional species in addition to perennial grass suppression may be desired. Seed mixtures for interseeding can be developed from Tables 2 or 3 based on landowner objectives and vegetal composition of existing stands.

OPERATION AND MAINTENANCE

After the establishment period, use spot mowing or spot herbicide treatment where possible, to control noxious weeds and other undesirable plant growth.

Mowing after the establishment period (except for noxious weed control) shall be done prior to April 15 or after August 1 to protect nesting wildlife. Exceptions can be made to allow mowing, burning, and/or chemical treatments when necessary to maintain the health and diversity of the plant community.

Maintenance levels of plant nutrients may be necessary where plant vigor declines.

Burning native plant stands may be appropriate when plant vigor declines, diversity diminishes, or where invader species encroach. See Prescribed Burning, Practice Code 338 for additional information and criteria.

Where the conservation cover is grazed or hayed, refer to Prescribed Grazing, Practice Code 528 and Forest Harvest Management, Practice Code 511.

Strip disking can be used to control stand succession and maintain wildlife benefits. See Early Successional Habitat Development/Management (Practice Code 647) standards and specifications for specific guidelines.

The procedure in Illinois Agronomy Technical Note (IL-2) shall be used for stand evaluation.

REFERENCES

Heath, M.E., D.S. Metcalfe, R.F. Barnes. 1973. Forages-The Science of Grassland Agriculture, 3rd ed., Iowa State University Press, Ames.

Illinois Native Plant Guide for Streams and Stormwater Facilities in Northeast Illinois. 1997. Revised 2004.

Illinois Plant Information Network (ILPIN), <http://www.fs.fed.us/ne/delaware/ilpin/ilpin.html>

McClain, W.E. 1997. Prairie Establishment and Landscaping, Technical Publication No. 2. Division of Natural Heritage, Illinois Department of Natural Resources, Springfield, Illinois.

National Range and Pasture Handbook, USDA, Natural Resources Conservation Service, Grazing Lands Technology Institute, 1997.

Prairie Moon Nursery, [Prairie Moon Nursery - Native Prairie Seeds](#)

USDA, NRCS. 2008. The PLANTS Database (<http://plants.usda.gov>, 25 July 2008). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Table 1. Seeding Dates

Time of Seeding	Plant Suitability Zone ¹	Cool Season Species	Warm Season Species ²
Spring	I	Early spring - June 1	Early spring - June 15
	II	Early Spring - May 15	Early spring - June 5
	III	Early Spring - May 15	Early spring - June 1
Late Summer	I	August 1 - September 1	Not Recommended
	II	August 1 - September 10	Not Recommended
	III	August 1 - September 20	Not Recommended
Dormant	I	November 1 - Freeze-up	November 1 - Freeze-up
	II	November 15 - Freeze up	November 15 - Freeze up
	III	November 15 - Freeze up	November 15 - Freeze up
Frost ³	I	February 1 - March 15	February 1 - March 15
	II	February 1 - March 1	February 1 - March 1
	III	February 1 - March 1	February 1 - March 1
<p>1 - Refer to the "Plant Suitability Zones" map locate in Section I, IL-FOTG-Climatic Data</p> <p>2 - Dates to be used when warm and cool season natives are planted in mixture.</p> <p>3 - Refer to table 2 and 3 for applicable plant species.</p>			

Table 2. Introduced grasses and legumes

Species S=Sod Forming B= Bunch Forming	Suggested percent mixture by weight to benefit wildlife	Seeds per pound	Seeds per square foot at 1 Lb. PLS/Acre	Recommended seeding rate when included in mixtures ⁴ Lbs. PLS/Acre	Wildlife Suitability P=Pheasant Q=Quail PN=Beneficial for Pollinators	Site Suitability ³	Optimal Soil pH Range
Smooth Bromegrass(S)	0-60	136,000	3	1-3	P	D,WD	5.6-8.4
Kentucky Bluegrass(S)	0-60	2,177,000	50	¾ - 1 ¼	Q	WD,PD	5.6-7.3
Orchardgrass(B)	0-50	654,000	15	½ - 1 ½	P,Q	D,WD	5.6-8.4
Timothy(B)	0-50	1,230,000	28	½ - 1 ½	P,Q	WD,PD	5.1-8.4
Red top(S)	0-50	4,990,000	114	¼ - ¾	P,Q	WD,PD	4.5-9.0
Perennial Ryegrass(B)	0-25	227,000	5	1-3	P	WD,PD	5.1-8.4
Alfalfa ¹	0-50	200,000	5	4-6	P, PN	D,WD	6.1-8.4
Birdsfoot Trefoil ¹	0-50	375,000	9	3-4	P,Q	D,WD,PD	5.1-8.4
Red Clover ¹	0-50	275,000	6	4-6	P,Q	D,WD	5.1-8.4
Crimson Clover ¹	0-50	140,000	3	5-6	P,Q	D,WD	5.5-7.0
Ladino Clover ¹	0-50	800,000	37	½ - 1	P,Q, PN	WD,PD	5.1-8.4
Alsike Clover ¹	0-50	700,000	18	2-3	P,Q,PN	WD,PD	5.1-7.3
Annual Lespedeza ^{1,2}	0-50	225,000	5	5-6	Q	D,WD	5.1-7.3 (Common)

1. Species suitable for frost seeding. Increase seeding rate by a factor of 1.5.

2. Annual lespedezas are adapted to Plant Suitability Zones 2 and 3 only. Common Korean and Summit are recommended varieties of Korean lespedeza. Kobe and Marion are recommended varieties of striate lespedeza.

3. D=Droughty, WD=Well Drained, PD=Poorly Drained

4. Suggested seed rates for interseeding into existing stands. For mixtures, base seed rate on percentage of the mixture desired. e.g. To interseed a seed mixture comprising of 50 percent red clover and 50 percent annual lespedeza into an existing sod cover, the red clover seed rate would be 2-3 lbs. PLS/acre and lespedeza would be 2.5 to 3 lbs. PLS/acre.

FIGURE 1. STATEWIDE DISTRIBUTION OF RINGNECK PHEASANT AND BOBWHITE QUAIL

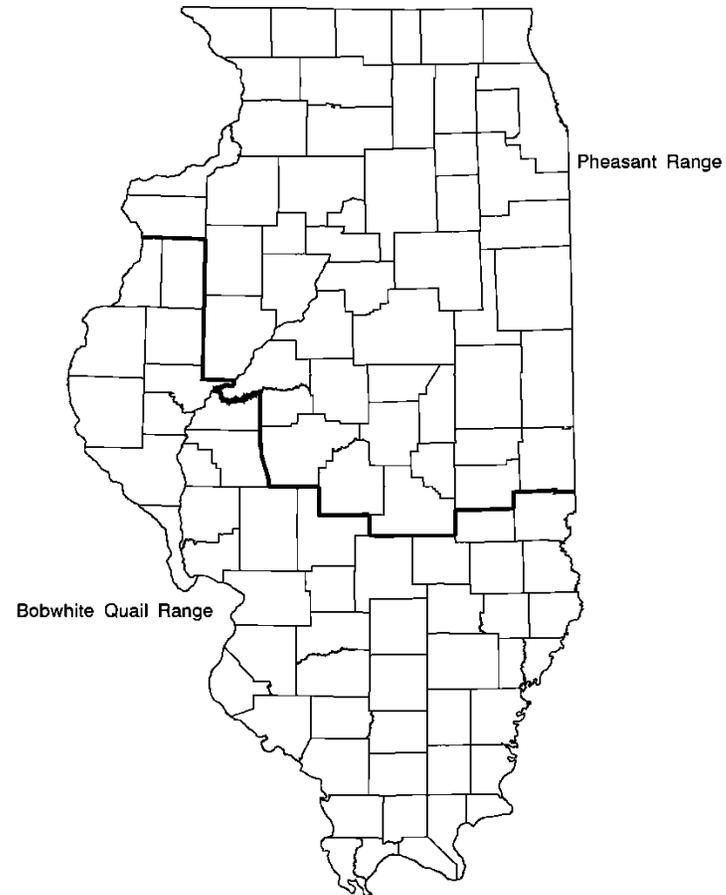


Table 3. Native grasses, sedges, and rushes

Grass, Sedge, and Rush Species	Native Ecosystem ¹	Moisture Regime ²	Seeds per ft ² at 1 lb. or (1 oz.) PLS/Acre	PLS seeds per pound	pH Range	Remarks
Big Bluestem, <i>Andropogon gerardii</i>	P,S	D,DM,M,WM	3	130,000	5.1-8.4	Warm Season
Blue Grama, <i>Bouteloua gracilis</i>	P	D	16	710,000	6.6-8.4	Warm Season, Sandy soils
Bull Sedge, <i>Carex lanuginosa</i>	P,W,S	W	(9)	6,486,000		
Canada Wildrye, <i>Elymus canadensis</i>	P,S	DM,M,WM	3	115,000	5-8	Cool season
Dark GreenBullrush, <i>Scirpus atrovirens</i>	P	W	(11)	7,360,000	4-8	
Eastern Gamagrass ³ , <i>Tripsacum dactyloides</i>	P	M,WM,W	0.2 ⁴	7,500	4.5-9.0	Warm Season
Fox Sedge, <i>Carex vulpinoidea</i>	P,W,S	W	30	1,297,000	6.8-8.9	
Hard Stemmed Bullrush, <i>Scirpus acutus</i>	P	W	5	206,400	5.2-8.5	
Hop Sedge, <i>Carex lupulina</i>	P	W	12	528,000	6.1-7.0	
Indiangrass, <i>Sorghastrum nutans</i>	P	D,DM,M,WM	4	170,000	5.6-7.3	Warm Season
June Grass, <i>Koeleria macrantha</i>	P	D,DM,M	34	1,465,000	6-8	Cool season, Sandy soils, beneficial to pollinators
Little Bluestem, <i>Schizachyrium scoparium</i>	P,S	D,DM,M	5	225,000	5.1-8.4	Warm Season, beneficial to pollinators

Grass, Sedge, and Rush Species	Native Ecosystem ¹	Moisture Regime ²	Seeds per ft ² at 1 lb. or (1 oz.) PLS/Acre	PLS seeds per pound	pH Range	Remarks
Prairie Dropseed, <i>Sporobolus heterolepis</i> ⁴	P	D,DM,M	28	1,200,000	6-7.2	Warm Season, Highly beneficial to pollinators
Rough Dropseed, <i>Sporobolus asper</i> ⁴	P	D,DM,M,WM	34	1,500,000		Warm Season
Sand Dropseed, <i>Sporobolus cryptandrus</i> ⁴	P	D,DM	114	5,000,000	6.6-8.0	Warm Season
Sand Lovegrass, <i>Eragrostis trichodes</i>	P,S	D, DM	35.6	1,550,000	6.0-8.5	Warm Season, Sandy soils
Sideoats Grama, <i>Bouteloua curtipendula</i>	P,S	D,DM	4.3	190,000	5.5-7.8	Warm Season, Highly beneficial to pollinators
Soft Stemmed Bullrush, <i>Scirpus validus</i>	P	W	11	496,000	5.4-7.5	
Switchgrass, <i>Panicum virgatum</i> ⁴	P,S	D,DM,M,WM	9	400,000	5.1-8.4	Warm Season
Virginia Wildrye, <i>Elymus virginicus</i>	P,S,W	WM,W	2	75,000	5-7	Cool season
Prairie Cordgrass, <i>Spartina pectinata</i>	P	M,WM,W	Plugs or rhizomes on 3 foot centers		6.0-8.5	Warm Season, Seedings are unreliable
Bluejoint Reedgrass, <i>Calamagrostis canadensis</i>	P	WM,W	Plugs or rhizomes on 0.5-1.5 foot centers	3,750,000	4.5-8.0	Cool season, Seedings are unreliable
Wool Grass, <i>Scirpus cyperinus</i>	P, W	WM,W	(39.0)	27,200,000	3.7-8.4	Highly beneficial to pollinators

327-12

Grass, Sedge, and Rush Species	Native Ecosystem ¹	Moisture Regime ²	Seeds per ft ² at 1 lb. or (1 oz.) PLS/Acre	PLS seeds per pound	pH Range	Remarks
1. Native Ecosystem: P=Prairie, S=Savanna, W= Woodland 2. Moisture Regime: D=Dry, DM=Dry Mesic, M=Mesic, WM=Wet Mesic, W=Wet 3. For mixtures including Eastern Gamagrass, consider 1 lb./acre to provide the equivalent of 2 seeds/ft ² 4. Suitable for frost seeding.						

Table 3a. Native Forbs

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Alumroot, <i>Heuchera richardsonii</i>	P	D, DM, M	April-June	16	687,500		
American Germander, <i>Teucrium canadense</i>	P, S, W	M, WM	June-Sept.	0.5	21,800	4.5-8.0	Aggressive
Angelica, Great, <i>Angelica atropurpurea</i>	P,W	WM,M	May-June	0.12	5,400	7-8	Highly beneficial to pollinators
Aster, Aromatic, <i>Symphotrichum oblongifolius</i>	P	D, DM, M	Aug.-Oct.	1.1	51,000	7.0-8.0	
Aster, Calico, <i>Symphotrichum lateriflorus</i>	S, W	W, WM	Sept.-Oct.	5.7	250,000		
Aster, False <i>Boltonia asteroides</i>	P	W, WM	Aug.-Oct.	3.7	160,000		
Aster, Flat-topped, <i>Symphotrichum umbellatus</i>	P, S	W	Aug.-Oct.	1.15	50,250		Highly beneficial to pollinators

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Aster, Frost, <i>Symphyotrichum pilosum</i>	P, S, W	D, DM, M	Sept.-Oct.	3.2	140,000		Highly beneficial to pollinators, very aggressive. Seed no more than 1 ounce/acre
Aster, New England, <i>Symphyotrichum novae-angliae</i>	P, S	M, WM	Aug.-Oct	1.5	66,000		Highly beneficial to pollinators
Aster, Panicked <i>Symphyotrichum lanceolatum</i>	P,W	WM, M	July-Oct.	1.0	190,000		Highly beneficial to pollinators
Aster, Silky, <i>Symphyotrichum sericeus</i>	P, S	D, DM	Sept.-Oct.	1.29	55,600		Highly beneficial to pollinators
Aster, Sky Blue, <i>Symphyotrichum azureus</i>	P, S	D, DM, M	Sept.-Oct.	1.45	63,000		Highly beneficial to pollinators,
Aster, Smooth Blue, <i>Symphyotrichum laevis</i>	P, S	DM, M, WM	Aug.-Oct.	1.15	50,000		Highly beneficial to pollinators, easily
Aster, Swamp, <i>Symphyotrichum puniceus</i>	P, S	W	Aug.-Oct.	1.0	43,750		Highly beneficial to pollinators

327-14

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Aster, White Heath, <i>Symphyotrichum ericoides</i>	P, S	D, DM, M	Aug.-Oct.	4.6	200,000		Highly beneficial to pollinators Seed no more than 0.1 ounce/acre
Bird's Foot Violet, <i>Viola pedata</i>	P	D, DM	April-June	0.6	26,000		
Black-eyed Susan, <i>Rudbeckia hirta</i>	P, S	D, DM, M, WM	July-Sept.	2.0	93,750	6.0-7.0	Biennial, Seed no more than 1 oz./ac., easily established
Blazingstar, Dotted, <i>Liatris punctata</i>	P	D, DM, M	Aug.-Sept	0.09	3,900	6.0-7.8	Highly beneficial to pollinators
Blazingstar, Dwarf, <i>Liatris cylindricea</i>	p	D, DM	Aug.-Sept.	0.32	14,000		Highly beneficial to pollinators,
Blazingstar, Marsh <i>Liatris spicata</i>	P	W, WM, M	July-Sept.	0.25	11,000		Highly beneficial to pollinators
Blazingstar, Prairie, <i>Liatris pycnostachya</i>	P	DM, M, WM	July-Sept.	0.17	7,500	6-8.5	Highly beneficial to pollinators, easily established,

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Blazingstar, Rough, <i>Liatrix aspera</i>	P, S	D, DM,M	Aug.-Sept.	0.34	16,000		Highly beneficial to pollinators, easily established,
Blue-eyed Grass, <i>Sisyrinchium campestre</i>	P, S	D, DM, M	May-June	1.0	45,000		
Blue Flag Iris, <i>Iris shrevei</i>	P, S	W	May-July	0.02	1,000		Fall plant
Blue Lobelia, <i>Lobelia siphilitica</i>	P, S	WM,W	Aug.-Oct.	9.2	400,000		Highly beneficial to pollinators
Blue Vervain, <i>Verbena hastata</i>	P	W	June-Oct.	2.0	93,000		
Boneset, <i>Eupatorium perfoliatum</i>	P	W, WM	Aug.-Oct.	3.6	160,000		Highly beneficial to pollinators
Boneset, False, <i>Brikellia eupatorioides</i>	P	DM,D	Aug.-Sept.	0.73	32,000		
Bottle or Closed Gentian, <i>Gentiana andrewsii</i>	P, S	M	Aug.-Oct.	13.0	562,500	5.8-7.2	Highly beneficial to pollinators
Brown-eyed susan, <i>Rudbeckia triloba</i>	P, S	DM,M,W	Jul.-Sept.	0.8	35,000		
Bunchflower, <i>Melanthium virginicum</i>	P	WM, W	June-July	0.20	9,000		Highly beneficial to pollinators

327-16

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Canada Anemone, <i>Anemone canadensis</i>	P,S	W, WM, M	May-June	0.18	8,000		Highly beneficial to pollinators
Cardinal Flower, <i>Lobelia cardinalis</i>	P, S	WM, W	July-Sept.	6.8	300,000	5.8-7.8	Highly beneficial to pollinators
Carpenter's Square, Maryland Figwort, <i>Scrophularia marilandica</i>	S, W	DM,M	July-Oct.	3.9	170,000		Highly beneficial to pollinators
Compass Plant, <i>Silphium laciniatum</i>	P	DM, M	June-Sept.	0.01	600		Highly beneficial to pollinators
Cream Wild Indigo, <i>Baptisia leucophaea</i>	P, S	DM, M	May	.03	1,400		Highly beneficial to pollinators
Culver's Root, <i>Veronicastrum virginicum</i>	P, S	M, WM, W	June-Sept.	17.2	750,000		Highly beneficial to pollinators
Cup Plant, <i>Silphium perfoliatum</i>	P, S	M, WM, W	June-Sept.	0.03	1,400		Highly beneficial to pollinators
Dotted Mint, <i>Monarda punctata</i>	P,S,W	DM,D	June-Oct.	2.0	90,000		Highly beneficial to pollinators, sandy soils
Downy Gentian, <i>Gentiana puberulenta</i>	P, S	M, WM	Sept.-Oct.	10.0	435,000		

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Evening Primrose, <i>Oenothera biennis</i>	P, S	D, DM, M	Aug.-Sept.	2.0	86,000	5.0-7.0	Biennial
Feverfew or Wild Quinine, <i>Parthenium integrifolium</i>	P	DM,M,WM	June-August	0.16	7,000		Easily established
Flowering spurge, <i>Euphorbia corollata</i>	P	D, DM, M	June-Sept.	0.18	8,000		
Fringed Gentian, <i>Gentianopsis crinita</i>	P	WM, W	Sept.-Oct.	5.3	231,250		Biennial
Fringed Loosestrife, <i>Lysimachia ciliata</i>	P, W	WM, W	June-Aug.	2.0	90,000		
Goats Rue, <i>Tephrosia virginiana</i>	P,S	D, DM	June-July	.05	2,500	4-6	Legume, sandy soils
Golden Alexanders, <i>Zizia aurea</i>	P, S, W	M, WM	April-June	0.28	12,000		Highly beneficial to pollinators, Easily established
Golden Ragwort, <i>Packera aurea</i> or <i>Senecio aureus</i>	P,W	W, WM	April-May	1.7	73,000		Highly beneficial to pollinators
Goldenrod, Old Field, Gray, <i>Soildago nemoralis</i>	P, S	D, DM, M	Aug.-Oct.	6.9	300,000	6.5-7.5	
Goldenrod, Riddells, <i>Solidago ridellii</i>	P	W	Aug.-Sept.	2.1	93,000		Highly beneficial to pollinators, suited to wet/calcareous soils

327-18

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Goldenrod, Rigid or Stiff, <i>Solidago rigida</i>	P	D, DM, M, WM	Aug-Oct.	1.0	41,000		Highly beneficial to pollinators, easily established,
Goldenrod, Showy, <i>Solidago speciosa</i>	P, S	DM, M	July-Oct.	2.18	95,000		Highly beneficial to pollinators
Gray-headed Coneflower, <i>Ratibida pinnata</i>	P, S	D, DM, M, WM	July-Sept.	0.9	39,000	5.5-6.8	Easily established
Great Blue Lobelia, <i>Lobelia siphilitica</i>	P, S	W, WM	Aug.-Oct.	10.5	457,500		Highly beneficial to pollinators
Gray-headed Coneflower, <i>Ratibida pinnata</i>	P, S	D, DM, M, WM	July-Sept	0.9	39,000	5.5-6.8	Easily established
Heartleaf Meadow Parsnip, <i>Zizia aptera</i>	P, S	M	Apr.-June	0.02	750		
Hoary Puccoon, <i>Lithospermum canescens</i>	P	D, DM	May	0.57	25,000		
Hoary Vervain, <i>Verbena stricta</i>	P	D, DM	May-Sept.	0.77	33,400		Easily established
Illinois Bundle Flower, <i>Desmanthus illinoensis</i>	P, S, W	DM, M	June-Aug.	0.09	3,800	5.0-8.0	Legume, easily established
Illinois Tick Trefoil, <i>Desmodium illinoense</i>	P, S, W	D, DM	June-July	0.09	4,000		

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Ironweed, <i>Vernonia fasciculata</i>	P, S	W	July-Oct.	0.55	24,000		Highly beneficial to pollinators, easily established
Ironweed, Missouri, <i>Veronia missurica</i>	P	WM,M,DM	July-Oct.	0.53	22,000		Highly beneficial to pollinators
Joe-Pye Weed, <i>Eupatorium maculatum</i>	P	W	July-Sept.	2.1	95,000		
Lance Leaf Coreopsis, <i>Coreopsis lanceolata</i>	P, S	D, DM	May-June	0.46	20,000		
Leadplant, <i>Amorpha canescens</i>	P, S	D,DM,M	June-Aug.	0.4	17,000		Highly beneficial to pollinators, legume, sandy soils
Loosestrife, Winged, <i>Lythrum alatum</i>	P, W	W, WM	June-Sept.	68.9	3,000,000		Highly beneficial to pollinators
Lousewort, Wood Betony, <i>Pedicularis canadensis</i>	P, S	DM	May-June	0.75	3,300	4.0-7.0	
Marigold, Marsh, <i>Caltha palustris</i>	P, W	W, WM	April-June	0.60	26,000		Highly beneficial to pollinators
Milk Vetch, <i>Astragalus canadensis</i>	P	M	June-Aug.	0.36	15,600	6.0-8.0	Legume, easily established

327-20

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Milkweed, Butterfly, <i>Asclepias tuberosa</i>	P, S	DM, M	May-Sept.	0.10	4,300	4.8-6.8	Highly beneficial to pollinators
Milkweed, Claspig, <i>Asclepias amplexicaulis</i>	P	D,DM	May-July	0.06	2,400		Highly beneficial to pollinators, sandy soils
Milkweed, Common, <i>Asclepias syriaca</i>	P, S	M, DM	May-Aug.	0.10	4,000		Highly beneficial to pollinators, adapted to sandy soils
Milkweed, Prairie, <i>Asclepias sullivantii</i>	P	WM, M	June-July	0.10	4,500		Highly beneficial to pollinators
Milkweed Swamp, <i>Asclepias incarnata</i>	P	W	June-Aug.	0.10	4,300		Highly beneficial to pollinators, easily established
Milkweed, Tall Green, <i>Asclepias hirtella</i>	P	D	June-Aug.	0.10	4,300		Highly beneficial to pollinators
Milkweed, Purple, <i>Asclepias purpurascens</i>	P	DM, M, WM	May-July	.10	4,500		Highly beneficial to pollinators

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Milkweed, Showy, <i>Asclepias speciose</i>	P	DM, M	June-Aug.	.10	4,500		Highly beneficial to pollinators
Milkweed, Whorled, <i>Asclepias verticillata</i>	P,S	D	May-Sept.	0.25	11,000		Highly beneficial to pollinators
Mountain Mint, <i>Pycnanthemum virginianum</i>	P, S	DM, M, WM	July-Sept.	5.0	220,000		Highly beneficial to pollinators
Mountain Mint, Narrowleaf, <i>Pycnanthemum tenuifolium</i>	P,S	DM,M,WM	June-Sept.	8.7	378,000		Highly beneficial to pollinators
Obedient Plant, <i>Physostegia virginiana</i>	P, W	W,WM,M	Aug.-Sept.	0.25	11,000		Highly beneficial to pollinators
Ox-eye or False Sunflower, <i>Heliopsis helianthoides</i>	P, S	M	June-Sept	0.15	6,500		Easily established
Pagoda Plant, Ohio Horse Mint, Downy Wood Mint, <i>Blephilia ciliata</i>	P	M, DM, D	May-August	9.2	400,000		Highly beneficial to pollinators
Pale Gentian, <i>Gentiana alba</i>	P	M, WM	Sept.-Oct.	5.2	227,000		
Pale Purple Coneflower, <i>Echinacea pallida</i>	P	M	July-Aug.	0.15	6,600	6.5-7.2	Highly beneficial to pollinators, easily established

327-22

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Pale Spike Lobelia, <i>Lobelia spicata</i>	P,S	D, DM,M	July-Aug.	20.7	900,000		Highly beneficial to pollinators
Partridge Pea, <i>Chamaecrista fasciculata</i>	P, S	D,DM, M	July-Sept	0.07	3,100	6.5-7.5	Highly beneficial to pollinators, annual legume, sandy soils
Pasque Flower, <i>Pulsatilla patens</i>	P	D, DM	Mar.-April	0.41	18,000		Northern IL
Penstemon, Pale, <i>Penstemon pallidus</i>	P, S	D	May	4.1	180,000		Highly beneficial to pollinators
Penstemon, Foxglove or Smooth, <i>Penstemon digitalis</i>	P, S	M	May-July	2.8	125,000	5.5-7	Highly beneficial to pollinators
Prairie Cinquefoil (potentilla), <i>Potentilla arguta</i>	P, S	D, DM, M	June-July	5.3	230,000	6-8	Easily established
Prairie Coreopsis, <i>Coreopsis palmata</i>	P, S	D, DM, M	June	0.23	10,000		
Prairie Dock, <i>Silphium terebinthinaceum</i>	P	M, WM	July-Sept.	0.02	1,000		
Prairie Phlox, <i>Phlox pilosa</i>	P, S	DM, M	May-Aug.	.44	19,000		
Prairie Ragwort, <i>Senecio plattensis</i>	P	D, DM, M	May-June	2.3	100,000		
Prairie Smoke, <i>Geum triflorum</i>	P, S	D, DM	May-June	1.0	43,500		Northern 1/6 of IL

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Prairie Sundrop, <i>Oenothera pilosella</i>	P	WM, M	May-July	6.1	266,000		Highly beneficial to pollinators
Prairie Violet, <i>Viola pedatifida</i>	P	D, DM, M	April-June	0.7	28,000		
Primrose, Sand, <i>Oenothera rhombipetala</i>	P	D	June-Sept.	2.3	100,000		
Purple Coneflower, <i>Echinacea purpurea</i>	P, W	M	July-Aug.	0.14	6,000	6.5-7.2	Highly Beneficial to pollinators, easily established
Purple Hyssop, <i>Agastache scrophularifolia</i>	W	DM, M, WM	July-Sept.	2.1	93,000		Highly beneficial to pollinators
Purple Meadow Rue, <i>Thalictrum dasycarpum</i>	P	M, WM	May-June	0.25	11,000		Highly beneficial to pollinators
Purple Prairie Clover, <i>Dalea purpureum</i>	P	D, DM, M	July-Aug.	0.40	17,000		Highly beneficial to pollinators, legume
Rattlesnake Master, <i>Eryngium yuccifolium</i>	P	DM, M, WM	June-August	0.16	7,000		Highly beneficial to pollinators

327-24

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Rosinweed, <i>Silphium integrifolium</i>	P	DM, M	July-Sept.	0.03	1,400		Highly beneficial to pollinators, easily established,
Roundhead Lespedeza, <i>Lespedeza capitata</i>	P,S	D, DM, M	July-Sept.	0.18	8,000	5.7-8.2	Legume, easily established, sandy soils
Seedbox, <i>Ludwigia alternifolia</i>	P	M, MW, W	June-Aug.	29.8	1,300,000	4-6	Adapted to sandy soils
Scurf pea, <i>Psoralea tenuiflora</i>	P	D, DM	June-Sept.	0.02	1,000		Highly beneficial to pollinators, legume
Senna, Wild, <i>Cassia hebecarpa</i>	P	M,WM	July-August	0.03	1,400	4-7	Highly beneficial to pollinators, legume
Senna, Maryland, <i>Cassia marilandica</i>	P	M WM	July-August	0.04	1,700		Highly beneficial to pollinators, legume
Shooting Star, <i>Dodecatheon meadia</i>	P, S	D, DM, M	April-May	1.38	60,000	4-6	
Tick-Trefoil, Illinois <i>Desmodium illinoense</i>	P, S, W	D, DM	June-July	0.09	4,000		Highly beneficial to pollinators, legume

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Tick-Trefoil, Sessile leafed, <i>Desmodium sessilifolium</i>	P,S	D,DM	July-Sept.	0.11	5,000		Highly beneficial to pollinators, legume
Tick Trefoil, Showy, <i>Desmodium canadense</i>	P, S	M, WM	July-Aug.	0.13	5,500		Highly beneficial to pollinators, legume, easily established
Sneezeweed, <i>Helenium autumnale</i>	P	WM, W	Aug-Sept.	3.26	14,000		Highly beneficial to pollinators
Spiderwort, <i>Tradescantia ohiensis</i>	P, S	D, DM, M	May-June	0.18	8,000		Highly beneficial to pollinators
Spiked Lobelia, <i>Lobelia spicata</i>	P	DM, M	July-Aug.	20.7	90,000		Highly beneficial to pollinators
Spotted St. Johnswort, <i>Hypericum punctatum</i>	P, S	WM	June-Aug.	13.3	580,000		
Sunflower, Ashy, <i>Helianthus mollis</i>	P	D, DM,M	Aug.-Sept.	0.16	7,000		Highly beneficial to pollinators, Aggressive seed no more than 10 ounces/acre

327-26

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
Sunflower, Saw-tooth <i>Helianthus grosseserratus</i>	P, S	M,WM, W	July-Aug.	0.90	12,500		Highly beneficial to pollinators, aggressive, Seed no more than 10 ounces/acre
Sunflower, Showy, <i>Helianthus X leatiflorus</i>	P	DM,D	July-October	0.09	4,000		Highly beneficial to pollinators, Aggressive
Sunflower, Tall, <i>Helianthus giganteus</i>	P	W, WM	July-Sept.	0.23	10,000		Highly beneficial to pollinators
Swamp Buttercup, <i>Ranunculus hispidus</i>	S, W	W, WM	April-July	0.04	1,600		
Sweet Black-Eyed Susan, <i>Rudbeckia subtomentosa</i>	P, S	M	Aug.-Sept.	1.0	43,000		
Tall Tickseed or Tall Coreopsis, <i>Coreopsis tripteris</i>	P, S, W	M, MW	Aug.-Sept.	0.32	14,000		Aggressive
Thimbleweed, <i>Anemone cylindrica</i>	P, S	D, DM, M	May-Aug.	0.60	26,000		
Turtlehead, <i>Chelone glabra</i>	P,W	W, WM	July-Sept.	2.1	92,000		Highly beneficial to pollinators
White Prairie Clover, <i>Dalea candida</i>	P	DM, M	June-July	0.44	19,000		Highly beneficial to pollinators legume, easily established

Forbs and Legumes	Native Ecosystem ¹	Moisture Regime ²	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per Ounce	pH Range	Remarks
White Sage, <i>Artemisia ludoviciana</i>	P, S	D, DM, M	Aug.-Oct.	5.4	234,000		Aggressive
Wild White Indigo, <i>Baptisia alba</i>	P, S	DM,M,WM	May-July	0.04	1,700		Highly beneficial to pollinators
Wild Blue Indigo, <i>Baptisia australis</i>	P, S	D,DM,M, WM	May-June	0.03	1,500		Highly beneficial to pollinators, adapted to sandy soils
Wild Bergamont or Bee Balm, <i>Monarda fistulosa</i>	P, S	D, DM, M	May-Aug.	1.72	75,000	6-8	Highly beneficial to pollinators, easily established
Wild Blue Larkspur, <i>Delphinium carolinianum</i>	S, W	D, DM, M	June	1.34	60,000		
Wild Geranium, <i>Geranium maculatum</i>	P,S	DM,M	April-June	0.11	5,000		Highly beneficial to pollinators
Wild Lupine, <i>Lupinus perennis</i>	P,S	D,DM,M	May-June	.03	1,400		Highly beneficial to pollinators
Yellow Stargrass, <i>Hypoxis hirsuta</i>	P, S	M, WM	May-June	1.84	80,000		

1. Native Ecosystem: P=Prairie, S=Savanna, W= Woodland

2. Moisture Regime: D=Dry, DM=Dry Mesic, M=Mesic, WM=Wet Mesic, W=Wet

Table 3b. Native Woody Shrub Species

Perennial Native Woody Shrub Species	Moisture Regime ¹	Flowering Period	Seeds per ft ² at 1 PLS ounce/acre	Seeds per ounce	pH Range	Remarks
Button bush, <i>Cephalanthus occidentalis</i>	W, WM	June-August	0.14	6,000	5.3-8.5	Highly beneficial to pollinators
False indigo, <i>Amorpha fruticosa</i>	DM,M,W M	May-June	0.07	3,250	5.0-8.5	Legume, Highly beneficial to pollinators
Meadow rose, <i>Rosa blanda</i>	DM, M, WM	May-June	0.06	2,500		Highly beneficial to pollinators
New Jersey tea, <i>Ceanothus americanus</i>	DM, M	June-Aug.	0.16	7,000	4.3-6.5	Highly beneficial to pollinators
Inland New Jersey Tea, Redroot, <i>Ceanothus ovatus</i>	D, DM	June-Aug.	0.23	10,000		Rare, sandy soils, N. IL
Pasture rose, <i>Rosa carolina</i>	DM, M, WM	June-July	0.06	2,500	4-7	Highly beneficial to pollinators
Sunshine rose, <i>Rosa arkansana</i>	DM, M	June-July	0.06	2,500		Highly beneficial to pollinators
Prairie willow, <i>Salix humilis</i>	D,DM,M WM	March-May	Cuttings or bare root plants 200-300/acre		5.9-7.0	Highly beneficial to pollinators, sandy soils
Pussy Willow, <i>Salix discolor</i>	M,WM,W	March-May	Cuttings or bare root plants 200-300/ acre		5.0-7.0	Highly Beneficial to pollinators

1. Moisture Regime: D=Dry, DM=Dry Mesic, M=Mesic, WM=Wet Mesic, W=Wet

Wildlife Species	Introduced Species	Seed Rate Lbs. PLS/Acre	Native Species	Seed Rate Lbs. PLS/Acre
Pheasant				
Prefer cool season grass- legume mix or moderately dense warm season grass.	Mixture 1		Mixture 1	
	Smooth Brome	3	Sideoats Grama	1
	Timothy	½	Indiangrass	1
	Alfalfa	6	Little Bluestem	1
			Purple Prairieclover	1/2
			Wild Bergamot	1 oz.
	Mixture 2		Mixture 2	
	Smooth Brome	1	Little Bluestem	2
	Orchardgrass	1	Sideoats Grama	2
	Alfalfa	6	Canada Wildrye	1
Diverse Forb Mixture(10-20 species)			1-2	
Mixture 3		Mixture 3		
Orchardgrass	1	Little Bluestem	2	
Timothy	1	Sideoats Grama	2	
Red Clover	6	Purple Prairie Clover	1	
		Partridge Pea	1	

Wildlife Species	Introduced Species	Seed Rate Lbs. PLS/Acre	Native Species	Seed Rate Lbs. PLS/Acre
Whitetail Deer				
Prefer moderately dense warm season grass or cool season grass-legume stands. Legumes are an important deer food and should be included in a mixture or with other species or planted in a block as a food plot	Mixture 1		Mixture 1	
	Smooth Brome	3	Big Bluestem	1
	Orchardgrass	1/2	Switchgrass	1
	Alfalfa	6	Indiangrass	1
			Purple Prairie Clover	2
	Mixture 2		Mixture 2	
	Smooth Brome	1	Big Bluestem	1
	Timothy	1	Little Bluestem	2
Alfalfa	4	Sideoats Grama	1	
Red Clover	4	Partridge Pea	1	
		Illinois Bundleflower	1	
		Purple Prairie Clover	1/2	

Wildlife Species	Introduced Species	Seed Rate Lbs. PLS/Acre	Native Species	Seed Rate Lbs. PLS/Acre
Bobwhite Quail				
Prefer stands of bunch forming grasses the form overhead canopies with open space at ground level interspersed with legumes and other annual plant species.	Mixture 1		Mixture 1	
	Redtop	3/4	Little Bluestem	2
	Timothy	1 ¼	Sideoats Grama	2
	Red Clover	6	Partridge Pea	1
			Purple Prairie Clover	1/2
			Roundhead Lespedeza	1/2
Mixture 2 (Plant Suitability Zones 2 and 3 only)		Mixture 2		
Redtop	3/4	Little Bluestem	2	
Orchardgrass	1 ¼	Sideoats Grama	2	
Red Clover	4	Diverse forb mix (10-20 species)	1	
Annual lespedeza	5			

Wildlife Species	Introduced Species	Seed Rate Lbs. PLS/Acre	Native Species	Seed Rate Lbs. PLS/Acre
Waterfowl				
Duck species have differing preferences of vegetation height for nesting. For example, Pintails prefer short grasses, Blue Wing Teal prefer mid-size grasses, while Mallards and Gadwalls prefer tall species.	Mixture 1		Mixture 1	
	Redtop	3/4	Little Bluestem	2
	Timothy	1 ¼	Sideoats Grama	2
	Red Clover	6	Partridge Pea	1
			Purple Prairie Clover	1/2
			Roundhead Lespedeza	1/2
	Mixture 2 (Plant Suitability Zones 2 and 3 only)		Mixture 2	
	Redtop	3/4	Little Bluestem	2
	Orchardgrass	1 ¼	Sideoats Grama	2
	Red Clover	4	Canada Wildrye	2
	Annual Lespedeza	5	Diverse forb mix (10-20 species)	1
The mixes above are only example mixes that target specific wildlife species. Established and managed properly the resulting plant communities will benefit the targeted and other wildlife species. The mixes may or may not conform to the specifications of specific Conservation Programs. Consult administering agency personnel for specific program requirements. Planners may elect to design other mixtures using Tables 2 and/or 3. Planners or landowners may consult with IDNR or NRCS Biologists for seed mixes that meet specific goals or desire to target other wildlife species. Forb mixtures provide more diversity and may be used as a substitute for the legumes or forbs listed above. A sample forb mixture is provided below.				

Sample Forb Mixture

Forbs and Legumes	Native Ecosystem	Moisture Regime	Flowering Period	Seed Rate PLS ounce/acre	Seeds per ft ²	pH Range	Remarks
Black-eyed susan, <i>Rudbeckia hirta</i>	P, S	D, DM, M, WM	July-Sept	1.0	2.0	6.0-7.0	Biennial ,Seed no more than 1 oz./ac.
Penstemon, Foxglove or Smooth, <i>Penstemon digitalis</i>	P, S	M	May-July	1.0	2.8	5.5-7	Highly beneficial to pollinators
Common Milkweed, <i>Asclepias syriaca</i>	P, S,	DM, M	May-Aug.	2.0	.018		Beneficial to the Monarch butterfly
Purple Coneflower, <i>Echinacea purpurea</i>	P, W	M	July-Aug.	4.0	0.14	6.5-7.2	Highly Beneficial to pollinators, easily established
Purple Prairie Clover, <i>Dalea purpureum</i>	P	D, DM, M	July-Aug	2.0	0.80		Highly beneficial to pollinators, legume
Aster, New England, <i>Symphotrichum novae-angliae</i>	P, S	M, WM	Aug.-Oct	1.0	1.5		Highly beneficial to pollinators
Roundhead Lespedeza, <i>Lespedeza capitata</i>	P,S	D, DM, M	July-Sept	1.0	0.18	5.7-8.2	Legume, easily established, sandy soils
White Prairie Clover, <i>Dalea candida</i>	P	DM, M	June-July	2.0	0.88		Highly beneficial to pollinators, legume, easily established,
Wild Bergamont or Bee Balm, <i>Monarda fistulosa</i>	P, S	D, DM, M	May-Aug.	1.0	1.72	6-8	Highly beneficial to pollinators, easily established
Goldenrod, Rigid or Stiff, <i>Solidago rigida</i>	P	D, DM, M,WM	Aug-Oct	1.0	1.0		Highly beneficial to pollinators easily established
TOTAL				16.0	11		