Native Connections

RESOURCE & CULTURAL GUIDE

Native Seeds

Ecological Restoration

Native Landscapes

Producer of Michigan genotype native grass seed

(269) 580-4765
nativeconnections.net
Three Rivers, Michigan
Native Connections

was established in 1987 and is committed to improving our environment by creating and restoring natural landscapes, providing native wildflower and grass seed, and managing land for biodiversity.

We have extensive experience in designing and implementing native seed and plant installations for the purpose of land restoration, wildlife habitat, wetland mitigation, stormwater management and erosion control.

Our staff is passionately committed to conservation and ecological restoration. We are a state-wide leader in providing quality consulting and plant materials for native plant and restoration projects large and small. We have worked with government and tribal agencies, land trusts, corporate and residential clients.

Mission Statement

It is our intent to foster an atmosphere of cooperation in native landscape and restoration efforts between our employees, our clients and our colleagues for the ultimate purpose of achieving the greatest ecological benefit to our natural world.

Illustrations on front cover and inside front cover by Amelia Hansen
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Contact Information

Native Connections
17080 Hoshel Road
Three Rivers, MI 49093
Phone: (269) 580-4765
Fax: (269) 273-1367
Email: info@nativeconnections.net
www.nativeconnections.net
Our Services

Native Seed Mix Design
Native Connections specializes in designing and providing native seed mixes. With backgrounds in botany, conservation, and ecology, our staff creates mixes that mimic natural plant communities or provide specific environmental services. We have a selection of standard seed mixes or we can custom design a mix based on site-specific cultural factors, client objectives, and budget.

Site Assessments & Management Plans
Based on your needs and objectives, our experienced staff can perform varying levels of site inspection. A simple site assessment analyzing basic site factors will provide you with a summary of your site conditions, a suggested plant species list, necessary site prep, and installation methods. On the other end of the spectrum, we can provide a full botanical inventory with species level management recommendations and a long-term management plan.

Project Specifications
Whether a native planting (by seed or live plugs) is part of a mitigation, a new corporate landscape, or a restoration project in its own rite, we can work alongside project engineers and landscape architects to help ensure the specifications for site prep, installation, and management of the native plantings are designed to ensure a successful project.

Consultation
Because native plantings require a slightly different focus than traditional landscaping, Native Connections can provide on-site consulting services during all project phases to ensure that contractors utilize best practices for preparing, installing, and maintaining native plantings.

Implementation
For those projects where the site prep, installation, or maintenance might seem overwhelming to an owner or contractor, Native Connections can put our extensive experience to use by either performing these services directly or through one of our approved contractors. Our diverse experience and capabilities will ensure your project is completed correctly.
Our Philosophy

Native Connections strives to maintain ecological integrity in all aspects of our work. We realize we cannot replicate nature exactly, however, we do consider nature’s examples during the design phase of our restoration and native landscaping projects. We incorporate the following ethical standards into our work:

- **Local site conditions** (e.g. soil, hydrology, adjacent habitats) and pre-European settlement vegetation are considered when designing seed mixes.

- Seed mixes are designed with **appropriate species diversity and densities** that are based on native plant communities, yet are tailored to meet client preferences.

- **Only native species** are used in our seed mixes; cultivars and exotics are avoided. We caution against the widespread use of rare, threatened or endangered species. We try to avoid using these species when seed from local sources is not available or affordable. Due to the importance of many of these species and their popularity in prairie systems, we have included them in our Cultural Guide (page 15). Information on which species are rare or non-native in Michigan can be found in the Cultural Guide.

- **Seed is obtained from sources as close to a project site as seed availability and a client’s budget allows. Seed from local or regional sources** have adaptations that have evolved with local or regional soils and climate. Planting seed from different regions can decrease the genetic identity of local populations, affecting the overall genetic diversity of a native plant species.

- **Proper Management** of restoration and native planting projects is essential for ensuring successful results. Invasive species control and protection of rare species and natural communities are integrated into our management plans and recommendations to our clients.

Our Seed

We assure our clients that they will receive high quality native seed from regional sources. All of our Michigan genotype grass seed and most of our other species are sold on a Pure Live Seed (PLS) basis and have been tested by independent seed labs for purity and germination.

**Origin of Seed**

We grow and harvest Michigan genotype grass seed on 50 irrigated acres near Three Rivers, Michigan. The seed from our grass fields originates from multiple collection sites in southern Michigan. Our “Southlow” seed is from USDA Plant Materials Division.

Seed that we do not produce ourselves in southwest Michigan is acquired from other growers in Michigan and the Great Lakes region. We strive to preserve local genotype and provide seed that is adapted to local climate and soils. The origin of the seed is taken into consideration for each seed order and decisions are based upon location, customer preferences, environmental objectives and budget.

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Proving the Value

Academic Research in Native Plant Benefits

Native Connections has helped with many native plantings over the years: farm to prairie transformations, residential and corporate landscapes, restored wetlands and more. Some of our most satisfying work though, has been assisting researchers at our diverse regional universities answer questions crucial to our understanding of the many benefits of native plants.

**U of W-Madison and MSU researchers**, with funding from the Great Lakes Bioenergy Research Center, have been comparing the viability and productivity of various biofuel crops produced on ag land throughout Michigan and Wisconsin. Since 2008, we have provided and installed native seed for these sites to ensure quality and consistent plantings. Three native systems (switchgrass, native grass mix, grass & wildflower mix) and two non-native systems (hybrid poplar, miscanthus) were planted. On marginal sites with greater extremes, native crops established with greater ease than the non-native crops. They hope to show that biofuel crops grown on marginal land may provide a source of sustainable energy fuel, while also providing ecosystem services (climate change mitigation, habitat, etc.). This research will help us move into what eventually must be a more sustainable energy system.

**Rufus Isaacs’ Entomology lab at MSU** is studying the potential for native plants to provide stable habitat as honeybee populations seem to be in peril. For several years, we have provided seed mixes, installation expertise, and on-site consultation for many of their pollinator plantings. One of their studies has shown clear data that blueberry fields near native pollinator habitat produce bigger and more berries than fields without. Their research has also been used to develop pesticide guidelines to mitigate adverse effects on pollinators and other beneficial insects within those plantings. As demands grows for insect-pollinated fruit crops, maintaining healthy and diverse pollinator populations will be key to sustainably increasing production.

**Lars Brudvig’s Plant Ecology lab at MSU** is looking at degraded landscapes and what makes a successful restoration. At their request, we put them in touch with some of our past clients with established plantings. They’re collecting data on the diversity and quality of plants and comparing it to the original set we installed. We try to keep tabs on our plantings, but having a set of data-driven eyes to analyze them lets us know how our sites are truly doing - which plants do best under real conditions and which factors affect quality establishment. We look forward to their results allowing us to create better mixes and recommendations.

**Emily Grman (EMU) and Anna Groves (MSU)** are researching environmental factors related to establishment. We supplied the seed and helped design their mixes to ensure they would be comparable to typical restorations. Emily is looking at some of our established sites to understand the long-term effects of excess phosphorus in previously farmed fields, as well as competition from weeds, on newly seeded prairie species. In another study, she’s comparing the spatial distribution of plants to determine effects on success. Anna is researching the effects of minor and major differences of weather in the planting year by keeping the planting date, site prep, site conditions, and planting techniques the same for several seasons. Her custom rain-out shelters also allow her to alter the precipitation within those parameters.

Sustainable use of native plants in our energy cycle, food systems, and landscape restoration will be a key part of our future. As research continues, we look forward to contributing and learning wherever we can. Many thanks to the researchers who contributed to this article: **Jessica Mayry & Gregg Sanford, U of W-Madison**, as well as those noted above. Visit our website for links to more information.
Our Michigan Genotype Grass Seed

We produce and harvest our Michigan genotype native grass seed on 50 acres near Three Rivers, MI. The seed from our production fields originates from collections from multiple remnant populations in southern Michigan. Our fields are irrigated only in extreme drought conditions and are kept weed free to ensure high seed quality.

After harvest, the seed is put into large dryer bins that continually circulate unheated air through the seed until it is adequately dried. After each species is cleaned through a specific, multi-step cleaning process, samples from each lot are sent to an independent seed testing lab to be tested for purity and germination. Our clean seed is then stored in our temperature and humidity controlled warehouse cooler to maintain optimum germination.

Our native grass seed is “Source Certified” and our fields are inspected each year by Michigan Crop Improvement. Native Connections is a member of the Michigan Native Plant Producers Association and we are committed to enhancing the diversity and health of Michigan’s unique natural heritage.

We are continually working to increase our selection of Michigan genotype grass and wildflower seeds. Call, email or visit our website for pricing and availability of new species.

Available Michigan Genotype Grass Seed

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Dry</th>
<th>Dry-mesic</th>
<th>Mesic</th>
<th>Wet-mesic</th>
<th>Wet</th>
<th>Sun</th>
<th>Soil</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>Big Bluestem</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>☀</td>
<td>C,L,S,M</td>
<td>4-8'</td>
</tr>
<tr>
<td>Elymus canadensis*</td>
<td>Canada Wild Rye*</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>C,L,S</td>
<td>3-5'</td>
</tr>
<tr>
<td>Elymus riparius</td>
<td>Riverbank Wild Rye</td>
<td>–</td>
<td>–</td>
<td>X</td>
<td>–</td>
<td>X</td>
<td>☀</td>
<td>C,L,S,M</td>
<td>3-5'</td>
</tr>
<tr>
<td>Elymus villosus</td>
<td>Silky Wild Rye</td>
<td>–</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>LS</td>
<td>2-5'</td>
</tr>
<tr>
<td>Elymus virginicus</td>
<td>Virginia Wild Rye</td>
<td>–</td>
<td>–</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>☀曜</td>
<td>C,L,S,M</td>
<td>2-5'</td>
</tr>
<tr>
<td>Hystrix patula</td>
<td>Bottlebrush Grass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>LS</td>
<td>3-5'</td>
</tr>
<tr>
<td>Koeleria cristata*</td>
<td>Junegrass*</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>LS</td>
<td>1-2'</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>C,L,S,M</td>
<td>2-5'</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>LS</td>
<td>2-4'</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>Indiangrass</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>–</td>
<td>–</td>
<td>☀</td>
<td>C,L,S</td>
<td>4-6'</td>
</tr>
</tbody>
</table>

See our website for species pricing

*Limited Mich. genotype available, otherwise Great Lakes genotype.
Native Connections offers fourteen standard seed mixes. We’ve divided them into three general categories based on their intent: Natural Community Mixes, Pollinator Mixes and Working Mixes. Though we offer these standard mixes, we can create a custom mix based on project-specific conditions such as soils, hydrology, sun exposure, historical data, client objectives and budget. Note: Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

**NATURAL COMMUNITY MIXES**

Native Connections has always strived to mimic our region’s many natural plant communities in our seed mix designs. Our most extensive set, these mixes were developed by staff familiar with and passionate for our native plant communities. Listed in categories of soil moisture, height, and shade tolerance, you’ll likely find a mix that will meet your objectives. If you don’t see a specific plant that you need or want, contact us for a custom mix design at no charge.

### Basic Shortgrass Prairie Mix

This is the economy version of our Dry Shortgrass Prairie Mix. Though the diversity and seed density are reduced, this is a great starter prairie where a low stature on dry soils is needed or desired.

Total Seeding Rate: 31 lbs per acre  
3.75 lbs grasses • 2.25 lbs forbs • 25 lbs cover crop  
40 native seeds per sq ft

*Call, email or visit our website for pricing.*

<table>
<thead>
<tr>
<th>Grasses</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses</strong></td>
<td><strong>Forbs</strong></td>
</tr>
<tr>
<td>Bouteloua curtipendula</td>
<td>Side-oats Grama 20.00</td>
</tr>
<tr>
<td>Bromus kalmii</td>
<td>Prairie Brome 4.00</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>Canada Wild Rye 7.00</td>
</tr>
<tr>
<td>Koeleria cristata</td>
<td>June Grass 0.10</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass 0.80</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem 28.00</td>
</tr>
<tr>
<td>Sporobolus heterolepis</td>
<td>Prairie Dropseed 0.10</td>
</tr>
</tbody>
</table>

60.00

### Dry Shortgrass Prairie Mix

A mix based on a variety of “poor-soil” communities including dry sand prairies, oak barrens and pine barrens. While big bluestem and Indian grass would typically be an important component of such prairies, and can certainly be added, this mix is designed to be low-profile so most plants won’t exceed four feet in height. This mix is appropriate for drier soils.

Total Seeding Rate: 32.5 lbs per acre  
4.5 lbs grasses • 3 lbs forbs • 25 lbs cover crop  
65 native seeds per sq ft

*Call, email or visit our website for pricing.*

<table>
<thead>
<tr>
<th>Grasses</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses</strong></td>
<td><strong>Forbs</strong></td>
</tr>
<tr>
<td>Bouteloua curtipendula</td>
<td>Side-oats Grama 17.00</td>
</tr>
<tr>
<td>Bromus kalmii</td>
<td>Prairie Brome 6.00</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>Canada Wild Rye 12.50</td>
</tr>
<tr>
<td>Koeleria cristata</td>
<td>June Grass 0.35</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass 0.80</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem 35.00</td>
</tr>
<tr>
<td>Sporobolus heterolepis</td>
<td>Prairie Dropseed 0.35</td>
</tr>
</tbody>
</table>

72.00

<table>
<thead>
<tr>
<th>Grasses</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses</strong></td>
<td><strong>Forbs</strong></td>
</tr>
<tr>
<td>Asclepias tuberosa</td>
<td>Butterfly Milkweed 0.50</td>
</tr>
<tr>
<td>Aster sagittifolius</td>
<td>Arrow-leaved Aster 0.50</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea 8.00</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis 7.00</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower 7.00</td>
</tr>
<tr>
<td>Kuhnia eupatorioides</td>
<td>False Boneset 0.50</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot 0.50</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foglove Beardtongue 0.50</td>
</tr>
<tr>
<td>Petalostemon purpureum</td>
<td>Purple Prairie Clover 4.00</td>
</tr>
<tr>
<td>Potentilla arguta</td>
<td>Prairie Cinquefoil 0.50</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower 0.70</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan 4.90</td>
</tr>
<tr>
<td>Solidago rigida</td>
<td>Stiff Goldenrod 0.70</td>
</tr>
<tr>
<td>Verbena stricta</td>
<td>Hoary Vervain 0.60</td>
</tr>
</tbody>
</table>

36.00

<table>
<thead>
<tr>
<th>Grasses</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grasses</strong></td>
<td><strong>Forbs</strong></td>
</tr>
<tr>
<td>Anemone virginiana</td>
<td>Tall Thimbleweed 0.10</td>
</tr>
<tr>
<td>Asclepias tuberosa</td>
<td>Butterfly Milkweed 1.40</td>
</tr>
<tr>
<td>Aster laevis</td>
<td>Smooth Blue Aster 0.80</td>
</tr>
<tr>
<td>Aster sagittifolius</td>
<td>Arrow-leaved Aster 2.25</td>
</tr>
<tr>
<td>Baptisia lactea</td>
<td>White Wild Indigo 1.75</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea 4.00</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis 4.25</td>
</tr>
<tr>
<td>Desmodium illinoense</td>
<td>Prairie Tick Trefoil 0.20</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower 4.25</td>
</tr>
<tr>
<td>Eryngium yuccifolium</td>
<td>Rattlesnake Master 1.50</td>
</tr>
<tr>
<td>Kuhnia eupatorioides</td>
<td>False Boneset 1.20</td>
</tr>
<tr>
<td>Liatris aspera</td>
<td>Rough Blazingstar 0.20</td>
</tr>
<tr>
<td>Lupinus perennis</td>
<td>Lupine 2.50</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot 2.50</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foglove Beardtongue 2.50</td>
</tr>
<tr>
<td>Petalostemon purpureum</td>
<td>Purple Prairie Clover 4.25</td>
</tr>
<tr>
<td>Potentilla arguta</td>
<td>Prairie Cinquefoil 1.25</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower 2.40</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan 4.00</td>
</tr>
<tr>
<td>Solidago rigida</td>
<td>Stiff Goldenrod 1.70</td>
</tr>
<tr>
<td>Tradescantia chiensis</td>
<td>Common Spiderwort 1.00</td>
</tr>
<tr>
<td>Verbena stricta</td>
<td>Hoary Vervain 3.50</td>
</tr>
<tr>
<td>Zoia aptera</td>
<td>Prairie Golden Alexander 0.50</td>
</tr>
</tbody>
</table>

48.00
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

NATURAL COMMUNITY MIXES

Basic Tallgrass Prairie Mix

This is the economy version of our Mesic Tallgrass Prairie Mix. The lower diversity and seed density still provide adequate coverage to establish a simple tallgrass prairie in dry to mesic soils.

Total Seeding Rate: 31.5 lbs per acre
4.5 lbs grasses  •  2 lbs forbs  •  25 lbs cover crop
40 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses and Sedges</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>Big Bluestem</td>
</tr>
<tr>
<td>Bouteloua curtipendula</td>
<td>Side-oats Grama</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>Canada Wild Rye</td>
</tr>
<tr>
<td>Koeleria cristata</td>
<td>June Grass</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>Indian Grass</td>
</tr>
</tbody>
</table>

72.00

Forbs

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asclepias syriaca</td>
<td>Common Milkweed</td>
</tr>
<tr>
<td>Aster sagittifolius</td>
<td>Arrow-leaved Aster</td>
</tr>
<tr>
<td>Astragalus canadensis</td>
<td>Canadian Milk Vetch</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
</tr>
<tr>
<td>Helianthus maximilliani</td>
<td>Maximilian’s Sunflower</td>
</tr>
<tr>
<td>Heliopsis helianthoides</td>
<td>False sunflower</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>Oenothera biennis</td>
<td>Common Evening Primrose</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foxglove Beardtongue</td>
</tr>
<tr>
<td>Petalostemum purpureum</td>
<td>Purple Prairie Clover</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan</td>
</tr>
<tr>
<td>Verbena stricta</td>
<td>Hoary Vervain</td>
</tr>
</tbody>
</table>

32.00

Mesic Tallgrass Prairie Mix

A mix that is based on our familiarity with the flora of Michigan’s few remnants of mesic and dry-mesic prairies as well as blacksoil prairies of Indiana, Illinois and Wisconsin. This mix is appropriate for medium to dry, loamy soils.

Total Seeding Rate: 33 lbs per acre
5 lbs grasses  •  3 lbs forbs  •  25 lbs cover crop
62 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses and Sedges</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>Big Bluestem</td>
</tr>
<tr>
<td>Carex bicknellii</td>
<td>Bicknell’s Sedge</td>
</tr>
<tr>
<td>Carex molesta</td>
<td>Field Oval Sedge</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>Canada Wild Rye</td>
</tr>
<tr>
<td>Juniceps tenuis</td>
<td>Path Rush</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>Indian Grass</td>
</tr>
</tbody>
</table>

80.00

Forbs

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allium cernuum</td>
<td>Nodding Wild Onion</td>
</tr>
<tr>
<td>Asclepias syriaca</td>
<td>Common Milkweed</td>
</tr>
<tr>
<td>Asclepias tuberosa</td>
<td>Butterfly Milkweed</td>
</tr>
<tr>
<td>Aster laevis</td>
<td>Smooth Blue Aster</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>New England Aster</td>
</tr>
<tr>
<td>Aster sagittifolius</td>
<td>Arrow-leaved Aster</td>
</tr>
<tr>
<td>Baptisia lactea</td>
<td>White Wild Indigo</td>
</tr>
<tr>
<td>Coreopsis triptera</td>
<td>Tall Coreopsis</td>
</tr>
<tr>
<td>Desmodium canadense</td>
<td>Showy Tick Trefoil</td>
</tr>
<tr>
<td>Desmodium illinoense</td>
<td>Prairie Tick Trefoil</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
</tr>
<tr>
<td>Eryngium yuccifolium</td>
<td>Rattlesnake Master</td>
</tr>
<tr>
<td>Gentiana flavida</td>
<td>Bottle Gentian</td>
</tr>
<tr>
<td>Helianthus helianthoides</td>
<td>False sunflower</td>
</tr>
<tr>
<td>Liatris spicata</td>
<td>Marsh Blazingstar</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>Oenothera biennis</td>
<td>Common Evening Primrose</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foxglove Beardtongue</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan</td>
</tr>
<tr>
<td>Rudbeckia triloba</td>
<td>Brown-eyed Susan</td>
</tr>
<tr>
<td>Silphium integrifolium</td>
<td>Rosinweed</td>
</tr>
<tr>
<td>Silphium terebinthinaceum</td>
<td>Prairie Dock</td>
</tr>
<tr>
<td>Solidago rigida</td>
<td>Stiff Goldenrod</td>
</tr>
<tr>
<td>Verbena stricta</td>
<td>Hoary Vervain</td>
</tr>
<tr>
<td>Vernonia missurica</td>
<td>Missouri Ironweed</td>
</tr>
<tr>
<td>Zizia aurea</td>
<td>Golden Alexander</td>
</tr>
</tbody>
</table>

48.00
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

### NATURAL COMMUNITY MIXES

#### Wet-Mesic Prairie Mix

This mix is patterned after natural prairie communities with mesic to wet soils and full sun. Species in this mix can tolerate a wide range of conditions including seasonal saturation as well as dry periods during the summer months. Not intended for long-term flooding or fully saturated areas, this mix will also do well in some stormwater detention basins or can be planted just upslope from wetland areas.

Total Seeding Rate: 32.5 lbs per acre
5 lbs grasses • 2.5 lbs forbs • 25 lbs cover crop 67 native seeds per sq ft

Call, email or visit our website for pricing.

#### Wet Meadow Mix

A diverse mix styled after a classic sedge meadow community, this mix is suitable for a variety of wet sites on muck or mineral soils, including periodically inundated and persistently moist conditions. It is also useful for many practical applications, including wetland mitigations and streambank stabilization projects.

Total Seeding Rate: 31 lbs per acre
3.4 lbs grasses • 2.6 lbs forbs • 25 lbs cover crop 93 native seeds per sq ft

Call, email or visit our website for pricing.
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

**Emergent Mix**

A mix that features species typical of the emergent zone associated with many of Michigan's wetland ecosystems, but also includes species that will thrive in simply saturated soils. Good for stabilizing shores and providing aquatic habitat, this mix will endure periodic to year-round inundation.

Total Seeding Rate: 30 lbs per acre
2.5 lbs grasses • 2.5 lbs forbs • 25 lbs cover crop
116 native seeds per sq ft

Call, email or visit our website for pricing.

**Grasses, Sedges & Rushes**

<table>
<thead>
<tr>
<th>Species</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beckmannia syzigachne</td>
<td>8.00</td>
</tr>
<tr>
<td>Carex comosa</td>
<td>4.00</td>
</tr>
<tr>
<td>Carex crispula</td>
<td>1.00</td>
</tr>
<tr>
<td>Carex hystericina</td>
<td>3.00</td>
</tr>
<tr>
<td>Carex stipata</td>
<td>2.00</td>
</tr>
<tr>
<td>Carex vulpinoida</td>
<td>4.00</td>
</tr>
<tr>
<td>Eleocharis palustris</td>
<td>0.30</td>
</tr>
<tr>
<td>Glyceria canadensis</td>
<td>2.00</td>
</tr>
<tr>
<td>Glyceria grandis</td>
<td>3.00</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>0.40</td>
</tr>
<tr>
<td>Juncus torreyi</td>
<td>0.20</td>
</tr>
<tr>
<td>Leersia oryzoides</td>
<td>1.00</td>
</tr>
<tr>
<td>Scirpus acutus</td>
<td>0.20</td>
</tr>
<tr>
<td>Scirpus atrovirens</td>
<td>1.00</td>
</tr>
<tr>
<td>Scirpus cyperinus</td>
<td>0.20</td>
</tr>
<tr>
<td>Scirpus fluviatilis</td>
<td>8.00</td>
</tr>
<tr>
<td>Scirpus validus</td>
<td>1.70</td>
</tr>
</tbody>
</table>

40.00

**Forbs**

<table>
<thead>
<tr>
<th>Species</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acorus americanus</td>
<td>4.30</td>
</tr>
<tr>
<td>Alisma subcordatum</td>
<td>3.50</td>
</tr>
<tr>
<td>Asclepias incarnata</td>
<td>2.50</td>
</tr>
<tr>
<td>Aster puniceus</td>
<td>0.50</td>
</tr>
<tr>
<td>Bidens cernua</td>
<td>1.50</td>
</tr>
<tr>
<td>Cicuta maculata</td>
<td>0.30</td>
</tr>
<tr>
<td>Eupatorium maculatum</td>
<td>0.30</td>
</tr>
<tr>
<td>Eupatorium perfoliatum</td>
<td>0.40</td>
</tr>
<tr>
<td>Iris virginica</td>
<td>4.20</td>
</tr>
<tr>
<td>Lelbea cardinals</td>
<td>0.10</td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td>0.20</td>
</tr>
<tr>
<td>Mimulus rings</td>
<td>0.10</td>
</tr>
<tr>
<td>Peltandra virginica</td>
<td>4.00</td>
</tr>
<tr>
<td>Penthorum sedoides</td>
<td>0.50</td>
</tr>
<tr>
<td>Polygonum pennsylvanicum</td>
<td>2.00</td>
</tr>
<tr>
<td>Popenenia cordata</td>
<td>1.00</td>
</tr>
<tr>
<td>Rumex verticillatus</td>
<td>0.20</td>
</tr>
<tr>
<td>Sagittaria latifolia</td>
<td>0.30</td>
</tr>
<tr>
<td>Sparganium eurycaprium</td>
<td>10.00</td>
</tr>
<tr>
<td>Verbena hastata</td>
<td>4.00</td>
</tr>
</tbody>
</table>

40.00

**Mesic Woodland Mix**

A mix that includes species from a variety of natural forest communities found throughout Michigan. It suits most sand, loam, and clay soils. This mix is meant for shade and will not do well in wet or saturated conditions, but it can be customized for drier or wetter soils.

Total Seeding Rate: 31.25 lbs per acre
3.75 lbs grasses • 2.5 lbs forbs • 25 lbs cover crop
56 native seeds per sq ft

Call, email or visit our website for pricing.

**Grasses, Sedges & Rushes**

<table>
<thead>
<tr>
<th>Species</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bromus purgans</td>
<td>3.00</td>
</tr>
<tr>
<td>Carex cristatella</td>
<td>0.40</td>
</tr>
<tr>
<td>Carex spargelii</td>
<td>0.50</td>
</tr>
<tr>
<td>Elymus villosus</td>
<td>8.00</td>
</tr>
<tr>
<td>Elymus virginicus</td>
<td>40.00</td>
</tr>
<tr>
<td>Glyceria striata</td>
<td>2.50</td>
</tr>
<tr>
<td>Hystrix patula</td>
<td>5.20</td>
</tr>
<tr>
<td>Juncus tenuis</td>
<td>0.40</td>
</tr>
</tbody>
</table>

60.00

**Forbs**

<table>
<thead>
<tr>
<th>Species</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allium tricoccum</td>
<td>1.00</td>
</tr>
<tr>
<td>Anemone canadensis</td>
<td>0.70</td>
</tr>
<tr>
<td>Aquilegia canadensis</td>
<td>0.50</td>
</tr>
<tr>
<td>Arisaema triphyllum</td>
<td>0.50</td>
</tr>
<tr>
<td>Aster cordifolius</td>
<td>0.10</td>
</tr>
<tr>
<td>Aster shortii</td>
<td>0.10</td>
</tr>
<tr>
<td>Blegia hirsuta</td>
<td>0.50</td>
</tr>
<tr>
<td>Campanula americana</td>
<td>0.30</td>
</tr>
<tr>
<td>Caulophyllum thalictoides</td>
<td>4.00</td>
</tr>
<tr>
<td>Eupatorium purpureum</td>
<td>2.00</td>
</tr>
<tr>
<td>Eupatorium rugosum</td>
<td>0.50</td>
</tr>
<tr>
<td>Geranium maculatum</td>
<td>0.10</td>
</tr>
<tr>
<td>Helianthus grosseserratus</td>
<td>1.50</td>
</tr>
<tr>
<td>Impatiens capensis</td>
<td>0.40</td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td>0.20</td>
</tr>
<tr>
<td>Pennstemon digitalis</td>
<td>2.50</td>
</tr>
<tr>
<td>Polygogenatum canaliculatum</td>
<td>1.00</td>
</tr>
<tr>
<td>Rudbeckia lacinata</td>
<td>6.40</td>
</tr>
<tr>
<td>Rudbeckia triloba</td>
<td>6.70</td>
</tr>
<tr>
<td>Smilacina racemosa</td>
<td>2.40</td>
</tr>
<tr>
<td>Solidago caesia</td>
<td>0.10</td>
</tr>
<tr>
<td>Solidago flexicaulis</td>
<td>0.10</td>
</tr>
<tr>
<td>Solidago rugosa</td>
<td>0.30</td>
</tr>
<tr>
<td>Thalictrum dioicum</td>
<td>0.10</td>
</tr>
<tr>
<td>Zizia aurea</td>
<td>8.00</td>
</tr>
</tbody>
</table>

40.00
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

### POLLINATOR MIXES

Working in Michigan, a state with such diverse agriculture and wildlife habitat, we’ve developed a special connection to the beauty and necessity of pollinator insects. With help from researchers at Michigan State University and The Xerces Society, we’ve designed these mixes with those beneficial insects in mind. Whether as part of a farm practice or as a concerned citizen creating habitat, consider using one of these or a custom mix in your next Pollinator planting.

#### CRP Pollinator Mix

This bare-bones prairie mix is our most economical grass and wildflower mix and meets NRCS specifications for several pollinator and wildlife habitat conservation programs in Michigan. The selected wildflowers will bloom throughout the growing season and provide diverse food and habitat resources for pollinator insects and other wildlife. CRP programs do not specify nurse crop, but it can be added.

**Total Seeding Rate:** 4 lbs per acre

2 lbs grasses • 2 lbs forbs

38 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>Big Bluestem</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>Canada Wild Rye</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem</td>
</tr>
</tbody>
</table>

Total: 32.00

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea millefolium</td>
<td>Yarrow</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>New England Aster</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
</tr>
<tr>
<td>Helianthus helianthoides</td>
<td>False sunflower</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>Oenothera biennis</td>
<td>Common Evening Primrose</td>
</tr>
<tr>
<td>Petalostemum purpureum</td>
<td>Purple Prairie Clover</td>
</tr>
<tr>
<td>Potentilla arguta</td>
<td>Prairie Cinquefoil</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan</td>
</tr>
<tr>
<td>Solidago rigida</td>
<td>Stiff Goldenrod</td>
</tr>
</tbody>
</table>

Total: 32.00

#### Mesic to Dry Pollinator Mix

Endorsed by The Xerces Society for Invertebrate Conservation, this prairie mix provides attractive blooms of pollinator preferred forage and nectar sources throughout the entire growing season. The grasses and wildflowers also provide diverse habitat resources for a wide range of other beneficial insects. This mix is well-suited for dry to mesic soils and mixed light conditions, making it ideal for the addition of native trees and shrubs once established.

**Total Seeding Rate:** 31 lbs per acre

2.3 lbs grasses • 3.7 lbs forbs • 25 lbs cover crop

55 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses and Sedges</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bouteloua curtipendula</td>
<td>Live-oats Grama</td>
</tr>
<tr>
<td>Carex vulpinoidea</td>
<td>Fox Sedge</td>
</tr>
<tr>
<td>Koeleria cristata</td>
<td>June Grass</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little Bluestem</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>Indian Grass</td>
</tr>
</tbody>
</table>

Total: 36.50

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agastache scrophulariifolia</td>
<td>Purple Giant Hyssop</td>
</tr>
<tr>
<td>Amorpha canescens</td>
<td>Leadplant</td>
</tr>
<tr>
<td>Asclepias syriaca</td>
<td>Common Milkweed</td>
</tr>
<tr>
<td>Asclepias tuberosa</td>
<td>Butterfly Milkweed</td>
</tr>
<tr>
<td>Aster laevis</td>
<td>Smooth Blue Aster</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>New England Aster</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
</tr>
<tr>
<td>Eryngium yuccifolium</td>
<td>Rattlesnake Master</td>
</tr>
<tr>
<td>Liatris cylindracea</td>
<td>Cylindrical Blazingstar</td>
</tr>
<tr>
<td>Liatris spicata</td>
<td>Marsh Blazingstar</td>
</tr>
<tr>
<td>Lupinus perennis</td>
<td>Lupine</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foxglove Beardtongue</td>
</tr>
<tr>
<td>Petalostemum purpureum</td>
<td>Purple Prairie Clover</td>
</tr>
<tr>
<td>Pycnanthemum tenuifolium</td>
<td>Slender Mountain Mint</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower</td>
</tr>
<tr>
<td>Rudbeckia fulgida</td>
<td>Orange Coneflower</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan</td>
</tr>
<tr>
<td>Silphium perfoliatum</td>
<td>Cupplant</td>
</tr>
<tr>
<td>Solidago rigida</td>
<td>Stiff Goldenrod</td>
</tr>
<tr>
<td>Vernonia fasciculata</td>
<td>Ironweed</td>
</tr>
<tr>
<td>Zizia aurea</td>
<td>Golden Alexander</td>
</tr>
</tbody>
</table>

Total: 59.50
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

WORKING MIXES

These mixes are designed for the critical projects engineers and contractors design and build. Whether it’s erosion control, stormwater retention, or mitigated wetland establishment, these mixes will cover the workload using a thoughtful and economical selection of native plants and temporary grasses.

Slope Stabilization Mix

An inexpensive mix designed to quickly and aggressively establish on disturbed slopes prone to erosion. While the species diversity is limited, the heavy nurse crop and relatively high native seed count ensure vigorous establishment. This mix is designed for medium to dry soils and will establish thorough lighter erosion control blankets.

Total Seeding Rate: 42 lbs per acre
4 lbs grasses • 38 lbs cover crop
52 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses, Sedges and Rushes</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>6.00</td>
</tr>
<tr>
<td>Bouteloua curtipendula</td>
<td>9.50</td>
</tr>
<tr>
<td>Carex molesta</td>
<td>1.50</td>
</tr>
<tr>
<td>Deschampsia cespitosa</td>
<td>4.50</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>8.00</td>
</tr>
<tr>
<td>Juncus tenuis</td>
<td>0.50</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>15.00</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>9.00</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>6.00</td>
</tr>
<tr>
<td>Sporobolus cryptandrus</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Total: 64.00

BioSwale Seed Mix

This mix is similar to our Wet-Mesic Prairie, except more specifically designed for swales, detention basins and raingardens. It has less emphasis on the tallest grasses and more emphasis on the shadier, more common wildflowers. For a shorter stature, we can easily customize it by eliminating the tall grasses and increasing the shorter sedges and rushes.

Total Seeding Rate: 32.25 lbs per acre
5 lbs grasses • 2.25 lbs forbs • 25 lbs cover crop
66 native seeds per sq ft

Call, email or visit our website for pricing.

<table>
<thead>
<tr>
<th>Grasses and Sedges</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andropogon gerardii</td>
<td>12.00</td>
</tr>
<tr>
<td>Carex bebbi</td>
<td>3.00</td>
</tr>
<tr>
<td>Carex vulpinoides</td>
<td>4.00</td>
</tr>
<tr>
<td>Elymus canadensis</td>
<td>16.00</td>
</tr>
<tr>
<td>Elymus virginicus</td>
<td>32.00</td>
</tr>
<tr>
<td>Glyceria striata</td>
<td>0.50</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>0.20</td>
</tr>
<tr>
<td>Juncus tenuis</td>
<td>0.10</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>4.20</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>6.00</td>
</tr>
<tr>
<td>Spartina pectinata</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Total: 80.00

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allium cernuum</td>
<td>Nodding Wild Onion 2.00</td>
</tr>
<tr>
<td>Asclepias incarnata</td>
<td>Swamp Milkweed 0.30</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>New England Aster 0.30</td>
</tr>
<tr>
<td>Cassia hebecarpa</td>
<td>Wild Senna 7.00</td>
</tr>
<tr>
<td>Desmodium canadense</td>
<td>Showy Tick Trefoil 0.50</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower 5.90</td>
</tr>
<tr>
<td>Eupatorium purpureum</td>
<td>Sweet Joe Pye Weed 0.25</td>
</tr>
<tr>
<td>Helianthus helianthoides</td>
<td>False sunflower 8.40</td>
</tr>
<tr>
<td>Hypericum pyramidatum</td>
<td>Great St John’s Wort 0.50</td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td>Great Blue Lobelia 0.80</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot 0.65</td>
</tr>
<tr>
<td>Pyracantha virginianum</td>
<td>Mountain mint 0.30</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Yellow Coneflower 1.00</td>
</tr>
<tr>
<td>Rudbeckia hirta</td>
<td>Black-eyed Susan 5.00</td>
</tr>
<tr>
<td>Scrophularia lanceolata</td>
<td>Early Figwort 0.50</td>
</tr>
<tr>
<td>Solidago riddellii</td>
<td>Riddell’s Goldenrod 0.50</td>
</tr>
<tr>
<td>Verbena hastata</td>
<td>Blue Vervain 1.10</td>
</tr>
<tr>
<td>Zizia aurea</td>
<td>Golden Alexander 1.00</td>
</tr>
</tbody>
</table>

Total: 36.00
Substitutions may be necessary due to availability. Nurse crop is annual ryegrass and seed oats.

### Working Mixes

#### Stormwater Mix

An economical mix specifically designed to withstand the low water quality and highly variable conditions associated with stormwater features. Approximately half of the species are salt tolerant and most species will do well in mesic to wet hydrology with others filling in the wettest and driest ends of the spectrum. The high native seed count and heavy annual nurse crop in this mix ensure full and aggressive establishment in a wide range of site conditions.

Total Seeding Rate: 40 lbs per acre
2.5 lbs grasses • 1.5 lbs forbs • 36 lbs cover crop
101 native seeds per sq ft

*Call, email or visit our website for pricing.*

<table>
<thead>
<tr>
<th>Grasses, Sedges &amp; Rushes</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex bebbii</td>
<td>1.75</td>
</tr>
<tr>
<td>Carex vulpinoidea</td>
<td>2.00</td>
</tr>
<tr>
<td>Eleocharis palustris</td>
<td>1.00</td>
</tr>
<tr>
<td>Elymus virginicus</td>
<td>17.00</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>0.50</td>
</tr>
<tr>
<td>Juncus tenuissus</td>
<td>0.50</td>
</tr>
<tr>
<td>Juncus torreyi</td>
<td>0.25</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>10.00</td>
</tr>
<tr>
<td>Scirpus pungens</td>
<td>1.00</td>
</tr>
<tr>
<td>Scirpus validus</td>
<td>1.00</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>5.00</td>
</tr>
<tr>
<td>Bebb’s oval sedge</td>
<td>1.75</td>
</tr>
</tbody>
</table>

#### Foraged Wetland Establishment Mix

With species that will tolerate full sun as well as shade, this mix is ideal for establishing a diverse native ground layer while small trees and shrubs develop into a mature wooded wetland. This mix can be used for reforestation projects in floodplain or wet areas or wetland mitigation projects that include tree and shrub plantings.

Total Seeding Rate: 31 lbs per acre
4.5 lbs grasses • 1.5 lbs forbs • 25 lbs cover crop
74 native seeds per sq ft

*Call, email or visit our website for pricing.*

<table>
<thead>
<tr>
<th>Grasses, Sedges &amp; Rushes</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beckmannia syzigachne</td>
<td>5.00</td>
</tr>
<tr>
<td>Bromus ciliatus</td>
<td>1.30</td>
</tr>
<tr>
<td>Calamagrostis canadensis</td>
<td>0.50</td>
</tr>
<tr>
<td>Carex bebbii</td>
<td>0.20</td>
</tr>
<tr>
<td>Carex comosa</td>
<td>2.00</td>
</tr>
<tr>
<td>Carex frankii</td>
<td>1.00</td>
</tr>
<tr>
<td>Carex hystericina</td>
<td>2.00</td>
</tr>
<tr>
<td>Carex stipata</td>
<td>2.00</td>
</tr>
<tr>
<td>Carex vulpinoidea</td>
<td>1.00</td>
</tr>
<tr>
<td>Elymus riparius</td>
<td>Riverbank Wild Rye 2.00</td>
</tr>
<tr>
<td>Elymus virginicus</td>
<td>50.00</td>
</tr>
<tr>
<td>Glycine grandis</td>
<td>2.00</td>
</tr>
<tr>
<td>Glycine striata</td>
<td>Fowl Man Grass 0.50</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>0.20</td>
</tr>
<tr>
<td>Scirpus cyperinus</td>
<td>0.20</td>
</tr>
<tr>
<td>Spartina pectinata</td>
<td>2.00</td>
</tr>
</tbody>
</table>

### Forbs PLS oz/acre

<table>
<thead>
<tr>
<th>Forbs</th>
<th>PLS oz/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinomeris alternifolia</td>
<td>1.25</td>
</tr>
<tr>
<td>Angelica atropurpurea</td>
<td>2.25</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>0.70</td>
</tr>
<tr>
<td>Aster punicus</td>
<td>0.20</td>
</tr>
<tr>
<td>Bidens frondos</td>
<td>Devil’s Beggarticks 0.20</td>
</tr>
<tr>
<td>Boltonia asteroides</td>
<td>False Aster 0.50</td>
</tr>
<tr>
<td>Cassia hebecarpa</td>
<td>3.60</td>
</tr>
<tr>
<td>Cephalanthus occidentalis</td>
<td>Buttonbush 1.00</td>
</tr>
<tr>
<td>Eupatorium perfoliatum</td>
<td>Boneset 0.50</td>
</tr>
<tr>
<td>Helianthus annuus</td>
<td>3.00</td>
</tr>
<tr>
<td>Iris virginica</td>
<td>Southern Blue Flag Iris 0.60</td>
</tr>
<tr>
<td>Lobelia siphilitica</td>
<td>Great Blue Lobelia 0.20</td>
</tr>
<tr>
<td>Ludwigia alternifolia</td>
<td>Seedbox 0.30</td>
</tr>
<tr>
<td>Mimulus ringens</td>
<td>0.10</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot 1.20</td>
</tr>
<tr>
<td>Penstemon digitalis</td>
<td>Foxglove Beardtongue 1.20</td>
</tr>
<tr>
<td>Physostegia virginiana</td>
<td>Obedient Plant 0.30</td>
</tr>
<tr>
<td>Prunella vulgaris</td>
<td>Golden Glow 1.50</td>
</tr>
<tr>
<td>Salvia officinalis</td>
<td>Cupplant 2.50</td>
</tr>
<tr>
<td>Solidago chlorolepis</td>
<td>Ohio Goldenrod 1.10</td>
</tr>
<tr>
<td>Zizia aurea</td>
<td>Golden Alexander 1.80</td>
</tr>
</tbody>
</table>
Forbs (Wildflowers)

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Sun</th>
<th>Soil</th>
<th>Blooms</th>
<th>Height</th>
<th>Color</th>
<th>Approx. Seeds/Oz</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achillea millefolium</td>
<td>Yarrow</td>
<td>X</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, JUL-AUG</td>
<td>1-3'</td>
<td>White</td>
</tr>
<tr>
<td>Acorus calamus</td>
<td>Sweet Flag</td>
<td>- X</td>
<td>- X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, MAY-JUL</td>
<td>1'</td>
<td>Green</td>
</tr>
<tr>
<td>Actaea rubra</td>
<td>Red Baneberry</td>
<td>- X</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, APR-MAY</td>
<td>2'</td>
<td>White</td>
</tr>
<tr>
<td>Actinomeris alternifolia</td>
<td>Wingstem</td>
<td>-</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, JUL-OCT</td>
<td>3'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Agastache nepetoides</td>
<td>Yellow Giant Hyssop</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>- X</td>
<td>L, S, M, JUL-SEP</td>
<td>3'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Alisma subcordatum</td>
<td>Common Water Plantain</td>
<td>-</td>
<td>- X</td>
<td>- X</td>
<td>- X</td>
<td>C, L, S, M, JUL-SEP</td>
<td>3'</td>
<td>White</td>
</tr>
<tr>
<td>Allium cernuum</td>
<td>Nodding Wild Onion</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>- X</td>
<td>C, L, S, M, JUL-AUG</td>
<td>1'</td>
<td>Lavender</td>
</tr>
<tr>
<td>Allium tricoccum</td>
<td>Wild Leek</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, JUN-AUG</td>
<td>6-12'</td>
<td>White</td>
</tr>
<tr>
<td>Anemone canadensis</td>
<td>Canada Thimbleweed</td>
<td>-</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, MAY-JUL</td>
<td>1'</td>
<td>White</td>
</tr>
<tr>
<td>Anemone cylindrica</td>
<td>Thimbleweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>1'</td>
<td>Green</td>
</tr>
<tr>
<td>Anemone virginiana</td>
<td>Tall Thimbleweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>2'</td>
<td>White</td>
</tr>
<tr>
<td>Angelica atropurpurea</td>
<td>Angelica</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, MAY-JUN</td>
<td>4'</td>
<td>White</td>
</tr>
<tr>
<td>Aquilegia canadensis</td>
<td>Wild Columbine</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, MAY-JUN</td>
<td>1'</td>
<td>Red</td>
</tr>
<tr>
<td>Arisaema triphyllum</td>
<td>Jack-in-the-Pulpit</td>
<td>- X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-JUL</td>
<td>1'-2'</td>
<td>Green</td>
</tr>
<tr>
<td>Arrhenatherum caudatum</td>
<td>Beach Wormwood</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>L, S, M, AUG-OCT</td>
<td>2'-5'</td>
<td>Green</td>
</tr>
<tr>
<td>Asclepias incarnata</td>
<td>Swamp Milkweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>3'</td>
<td>Pink</td>
</tr>
<tr>
<td>Asclepias syriaca</td>
<td>Common Milkweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>2'</td>
<td>Pink</td>
</tr>
<tr>
<td>Asclepias tuberosa</td>
<td>Butterfly Milkweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>1'</td>
<td>Orange</td>
</tr>
<tr>
<td>Asclepias verticillata</td>
<td>Whorled Milkweed</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUL-SEP</td>
<td>1'</td>
<td>White</td>
</tr>
<tr>
<td>Aster ferox</td>
<td>Sky Blue Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>1'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster cordifolius</td>
<td>Heart-leaved Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>1'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster ericoides</td>
<td>Heath Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>1'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster laevis</td>
<td>Smooth Blue Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>2'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster macrophyllus</td>
<td>Big-leaved Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>1'</td>
<td>White</td>
</tr>
<tr>
<td>Aster novae-angliae</td>
<td>New England Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, AUG-JUN</td>
<td>3'-6'</td>
<td>Purple</td>
</tr>
<tr>
<td>Aster pilosus</td>
<td>Frost Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>2'</td>
<td>White</td>
</tr>
<tr>
<td>Aster puniceus</td>
<td>Swamp Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, AUG-OCT</td>
<td>3'-6'</td>
<td>Purple</td>
</tr>
<tr>
<td>Aster sagittifolius</td>
<td>Arrow-leaved Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, AUG-OCT</td>
<td>2'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster shortii</td>
<td>Short's Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, SEP-OCT</td>
<td>2'</td>
<td>Blue</td>
</tr>
<tr>
<td>Aster simplex</td>
<td>Paniced Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, AUG-OCT</td>
<td>3'-5'</td>
<td>White</td>
</tr>
<tr>
<td>Aster umbellatus</td>
<td>Flat-topped Aster</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, AUG-OCT</td>
<td>2'</td>
<td>White</td>
</tr>
<tr>
<td>Astragalus canadensis</td>
<td>Canadian Milk Vetch</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUN-AUG</td>
<td>1'</td>
<td>Cream</td>
</tr>
<tr>
<td>Aureolaria flava</td>
<td>Smooth False Foxglove</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUL-OCT</td>
<td>2'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Baptisia lactea</td>
<td>White Wild Indigo</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>L, S, M, JUL-JUN</td>
<td>1'</td>
<td>White</td>
</tr>
<tr>
<td>Bidens cernua</td>
<td>Nodding Bur Marigold</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, JUL-OCT</td>
<td>1'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Bidens frondosa</td>
<td>Devil's Beggarticks</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, AUG-OCT</td>
<td>1'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Blaphilia hirsuta</td>
<td>Hairy Wood Mint</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUL-AUG</td>
<td>1'</td>
<td>White</td>
</tr>
<tr>
<td>Boltonia asteroidis</td>
<td>False Aster</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>C, L, S, M, AUG-OCT</td>
<td>3'-5'</td>
<td>White</td>
</tr>
<tr>
<td>Callicarpa trichocarpa</td>
<td>Pale Indian Plantain</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>L, S, M, JUL-SEP</td>
<td>3'</td>
<td>White</td>
</tr>
<tr>
<td>Caltha palustris</td>
<td>Marsh Marigold</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, APR-MAY</td>
<td>1'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Campanula americana</td>
<td>Tall Bellflower</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, JUL-OCT</td>
<td>2'</td>
<td>Blue</td>
</tr>
<tr>
<td>Campanula rotundifolia</td>
<td>Harebell</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, JUL-SEP</td>
<td>6'-12'</td>
<td>Purple</td>
</tr>
<tr>
<td>Cassia fasciculata</td>
<td>Partridge Pea</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>L, S, M, JUL-SEP</td>
<td>1'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Cassia hebecarpa</td>
<td>Wild Senna</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, JUL-AUG</td>
<td>3'</td>
<td>Yellow</td>
</tr>
<tr>
<td>Castilleja coccinea</td>
<td>Indian Paintbrush</td>
<td>X</td>
<td>X X</td>
<td>- X</td>
<td>X X</td>
<td>L, S, M, MAY-SEP</td>
<td>1'</td>
<td>Orange</td>
</tr>
<tr>
<td>Chelone glabra</td>
<td>Turtlehead</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>C, L, S, M, JUL-SEP</td>
<td>2'</td>
<td>Cream</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf Coreopsis</td>
<td>X</td>
<td>X X</td>
<td>X X</td>
<td>- X</td>
<td>L, S, M, MAY-AUG</td>
<td>1'</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

Legend

• = Full Sun  C = Clay  SC = Special Concern
* = Part Sun  L = Loam  T = Threatened
* = Shade  S = Sand  NN = Non Native in MI
M = Muck  X = Extirpated

This cultural guide is meant to be used as a resource while making decisions on native species selection. The species listed here are some of the more popular species we use in our seed mixes as well as some we find interesting. Many more are available; please contact us for more information. Note: Botanical names given are those most commonly used by native plant nurseries.
<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Sun</th>
<th>Soil</th>
<th>Blooms</th>
<th>Height</th>
<th>Color</th>
<th>Approx. Seeds/Oz</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>Coreopsis palmata</td>
<td>Prairie Coreopsis</td>
<td>X X X</td>
<td>L,S</td>
<td>JUN-AUG</td>
<td>1-3'</td>
<td>Yellow</td>
<td>10,000</td>
<td>T</td>
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<tr>
<td>Coreopsis tripteris</td>
<td>Tall Coreopsis</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>4-8'</td>
<td>Yellow</td>
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<tr>
<td>Desmanthes illinoensis</td>
<td>Illinois Sensitive Plant</td>
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<td>L,S</td>
<td>JUL-AUG</td>
<td>3-5'</td>
<td>White</td>
<td>4,200</td>
<td>NN</td>
</tr>
<tr>
<td>Desmodium canadense</td>
<td>Showy Tick Trefoil</td>
<td>X X X</td>
<td>C,L,S</td>
<td>JUL-SEP</td>
<td>2-5'</td>
<td>Pink</td>
<td>5,500</td>
<td></td>
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<tr>
<td>Desmodium illoisoense</td>
<td>Prairie Tick Trefoil</td>
<td>X X X</td>
<td>C,L,S</td>
<td>JUL-SEP</td>
<td>3-6'</td>
<td>Pink</td>
<td>4,300</td>
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<tr>
<td>Echinacea pallida</td>
<td>Pale Purple Coneflower</td>
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<td>C,L,S</td>
<td>JUL-JUL</td>
<td>2-4'</td>
<td>Pink</td>
<td>5,200</td>
<td>NN</td>
</tr>
<tr>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
<td>X X X</td>
<td>C,L,S</td>
<td>JUL-JUL</td>
<td>3-5'</td>
<td>Purple</td>
<td>6,600</td>
<td>X</td>
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<tr>
<td>Eryngium yuccifolium</td>
<td>Rattlesnake Master</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>3-5'</td>
<td>White</td>
<td>7,500</td>
<td>T</td>
</tr>
<tr>
<td>Eupatorium maculatum</td>
<td>Joe Pye Weed</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>4-7'</td>
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<td>96,000</td>
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<tr>
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<td>Boneset</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>3-5'</td>
<td>White</td>
<td>160,000</td>
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<tr>
<td>Eupatorium purpureum</td>
<td>Sweet Joe Pye Weed</td>
<td>X X X</td>
<td>C,L,S</td>
<td>JUL-SEP</td>
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<td>Pink</td>
<td>42,000</td>
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<tr>
<td>Eupatorium rugosum</td>
<td>White Snakeroot</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>AUG-OCT</td>
<td>1-3'</td>
<td>Purple</td>
<td>280,000</td>
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<tr>
<td>Euphorbia corollata</td>
<td>Flowering Spurge</td>
<td>X X X</td>
<td>L,S</td>
<td>JUN-AUG</td>
<td>2-4'</td>
<td>White</td>
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<tr>
<td>Frasera caroliniensis</td>
<td>American Columbo</td>
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<td>Gentianopsis andrewsi</td>
<td>Bottle Gentian</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>AUG-OCT</td>
<td>1-3'</td>
<td>Purple</td>
<td>700,000</td>
<td></td>
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<tr>
<td>Geranium maculatum</td>
<td>Wild Geranium</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>MAY-JUL</td>
<td>1-2'</td>
<td>Lavender</td>
<td>5,000</td>
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<tr>
<td>Geum triflorum</td>
<td>Prairie Smoke</td>
<td>X X</td>
<td>L,S</td>
<td>APR-JUN</td>
<td>6-12'</td>
<td>Pink</td>
<td>27,000</td>
<td>T</td>
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<td>Helianthus annuus</td>
<td>Sneezeweed</td>
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<td>C,L,S,M</td>
<td>AUG-OCT</td>
<td>3-5'</td>
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<td>130,000</td>
<td></td>
</tr>
<tr>
<td>Helianthus divaricatus</td>
<td>Woodland Sunflower</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>2-4'</td>
<td>Yellow</td>
<td>4,800</td>
<td></td>
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<tr>
<td>Helianthus giganteus</td>
<td>Tall Sunflower</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>4-10'</td>
<td>Yellow</td>
<td>10,000</td>
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<tr>
<td>Helianthus grosseserratus</td>
<td>Saw-toothed Sunflower</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>AUG-OCT</td>
<td>6-9'</td>
<td>Yellow</td>
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<tr>
<td>Helianthus mollis</td>
<td>Downy Sunflower</td>
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<td>L,S</td>
<td>AUG-SEP</td>
<td>2-5'</td>
<td>Yellow</td>
<td>7,000</td>
<td>T</td>
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<tr>
<td>Helianthus occidentalis</td>
<td>Western Sunflower</td>
<td>X X X</td>
<td>L,S</td>
<td>JUL-SEP</td>
<td>2-4'</td>
<td>Yellow</td>
<td>14,000</td>
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<tr>
<td>Helianthus strumosus</td>
<td>Pale-leaved Sunflower</td>
<td>X X X</td>
<td>L,S</td>
<td>JUL-SEP</td>
<td>3-5'</td>
<td>Yellow</td>
<td>4,200</td>
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<tr>
<td>Helopogon helianthoides</td>
<td>False Sunflower</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>SEP</td>
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<td>Yellow</td>
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<td>Heracleum maximum</td>
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<tr>
<td>Heuchera richardsonii</td>
<td>Prairie Alum Root</td>
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<td>MAY-JUN</td>
<td>1-3'</td>
<td>White</td>
<td>700,000</td>
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<tr>
<td>Hibiscus palustris</td>
<td>Swamp Rose Mallow</td>
<td>X X</td>
<td>L,S,M</td>
<td>JUL-SEP</td>
<td>4-7'</td>
<td>Pink</td>
<td>2,400</td>
<td>SC</td>
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<tr>
<td>Hydrangea arborescens</td>
<td>Great St. John’s Wort</td>
<td>X X X</td>
<td>C,L,M</td>
<td>JUL-SEP</td>
<td>3-6'</td>
<td>Yellow</td>
<td>190,000</td>
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</tr>
<tr>
<td>Iris versicolor</td>
<td>Northern Blue Flag Iris</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>MAY-JUL</td>
<td>2-3'</td>
<td>Purple</td>
<td>1,300</td>
<td></td>
</tr>
<tr>
<td>Iris virginica</td>
<td>Southern Blue Flag Iris</td>
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<td>C,L,S,M</td>
<td>MAY-JUL</td>
<td>2-3'</td>
<td>Purple</td>
<td>1,000</td>
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<tr>
<td>Kohnia eupatorioides</td>
<td>False Boneset</td>
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<td>L,S</td>
<td>AUG-SEP</td>
<td>1-3'</td>
<td>White</td>
<td>32,000</td>
<td>SC</td>
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<tr>
<td>Lespedeza capitata</td>
<td>Round-headed Bush Clover</td>
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<td>L,S</td>
<td>AUG-SEP</td>
<td>2-5'</td>
<td>White</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>Liatris aspera</td>
<td>Rough Blazingstar</td>
<td>X X X</td>
<td>L,S</td>
<td>JUL-OCT</td>
<td>1-3'</td>
<td>Purple</td>
<td>16,000</td>
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</tr>
<tr>
<td>Liatris cylindracea</td>
<td>Cylindrical Blazingstar</td>
<td>X X X</td>
<td>L,S</td>
<td>JUL-SEP</td>
<td>1-2'</td>
<td>Purple</td>
<td>14,000</td>
<td></td>
</tr>
<tr>
<td>Liatris scariosa</td>
<td>Savannah Blazingstar</td>
<td>X X X</td>
<td>L,S</td>
<td>AUG-SEP</td>
<td>2-4'</td>
<td>Purple</td>
<td>10,800</td>
<td></td>
</tr>
<tr>
<td>Liatris spicata</td>
<td>Marsh Blazingstar</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>3-5'</td>
<td>Purple</td>
<td>11,000</td>
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<tr>
<td>Lobelia cardinalis</td>
<td>Cardinal Flower</td>
<td>X X X</td>
<td>L,S,M</td>
<td>JUL-SEP</td>
<td>2-5'</td>
<td>Red</td>
<td>400,000</td>
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<tr>
<td>Lobelia inflata</td>
<td>Great Blue Lobelia</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>1-4'</td>
<td>Blue</td>
<td>500,000</td>
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<tr>
<td>Ludwigia alternifolia</td>
<td>Seedbox</td>
<td>X X X</td>
<td>L,S,M</td>
<td>JUL-SEP</td>
<td>2-3'</td>
<td>Yellow</td>
<td>281,250</td>
<td>SC</td>
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<tr>
<td>Lupinus perennis</td>
<td>Lupine</td>
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<td>L,S,M</td>
<td>MAY-JUN</td>
<td>1-2'</td>
<td>Blue</td>
<td>1,100</td>
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<tr>
<td>Lythrum salicaria</td>
<td>Water Horehound</td>
<td>X X X</td>
<td>L,S,M</td>
<td>JUL-SEP</td>
<td>1-2'</td>
<td>White</td>
<td>130,000</td>
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<tr>
<td>Mentha arvensis</td>
<td>Wild Mint</td>
<td>X X X</td>
<td>L,S,M</td>
<td>JUL-SEP</td>
<td>1-3'</td>
<td>White</td>
<td>300,000</td>
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<tr>
<td>Mimulus ringens</td>
<td>Monkey Flower</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUN-SEP</td>
<td>2-3'</td>
<td>Purple</td>
<td>2,300,000</td>
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<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
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<td>Monarda punctata</td>
<td>Horsemint</td>
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<td>S</td>
<td>JUL-SEP</td>
<td>1-2'</td>
<td>Pink</td>
<td>90,000</td>
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<tr>
<td>Napaecia dioica</td>
<td>Glade Mallow</td>
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<td>C,L,S,M</td>
<td>JUL-AUG</td>
<td>3-7'</td>
<td>White</td>
<td>5,300</td>
<td>NN</td>
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<tr>
<td>Eupatorium perfoliatum</td>
<td>Arrow Arum</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-SEP</td>
<td>2-6'</td>
<td>Yellow</td>
<td>90,000</td>
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<tr>
<td>Euthalia virginica</td>
<td>Common Evening Primrose</td>
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<td>JUL-SEP</td>
<td>2-4'</td>
<td>White</td>
<td>7,000</td>
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<tr>
<td>Penstemon virginicus</td>
<td>Great Solomon's Seal</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>AUG-SEP</td>
<td>2-4'</td>
<td>Pink</td>
<td>11,000</td>
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<tr>
<td>Polygonatum amphibium</td>
<td>Water Knotweed</td>
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<td>C,L,S,M</td>
<td>MAY-JUN</td>
<td>1-4'</td>
<td>White</td>
<td>1,200</td>
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<tr>
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<td>JUL-OCT</td>
<td>6-9'</td>
<td>Pink</td>
<td>3,125</td>
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<tr>
<td>Polygonatum pennsylvanicum</td>
<td>Pennsylvania Smartweed</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-OCT</td>
<td>1-3'</td>
<td>Pink</td>
<td>13,000</td>
<td></td>
</tr>
<tr>
<td>Polygonatum virginianum</td>
<td>Woodland Knotweed</td>
<td>X X X</td>
<td>C,L,S,M</td>
<td>JUL-OCT</td>
<td>1-4'</td>
<td>White</td>
<td>3,500</td>
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<tr>
<td>Pontederia cordata</td>
<td>Pickerel Weed</td>
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<td>L,S,M</td>
<td>JUL-SEP</td>
<td>1-3'</td>
<td>Purple</td>
<td>1,250</td>
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<tr>
<td>Potentilla arguta</td>
<td>Prairie Cinquefoil</td>
<td>X X X</td>
<td>L,S</td>
<td>JUL-AUG</td>
<td>1-3'</td>
<td>Yellow</td>
<td>230,000</td>
<td></td>
</tr>
</tbody>
</table>
### Botanical Name
- **Prenanthes alba** (Lion’s Foot) - X X X - -
- **Pycnanthemum virginianum** (Mountain Mint) - X X X - X
- **Ratibida pinnata** (Black-eyed Susan) - X X X - X
- **Rudbeckia fulgida** (Orange Coneflower) - X X X - X
- **Rudbeckia hirta** (Black-eyed Susan) - X X X X -
- **Rudbeckia laciniata** (Golden Glow) - - - X -
- **Rudbeckia speciosa sullivantii** (Showy Black-eyed Susan) - X X - X -
- **Rudbeckia subtomentosa** (Sweet Black-eyed Susan) - X X X - X
- **Rumex verticillatus** (Swamp Dock) - - - X X -
- **Sagittaria latifolia** (Common Arrowhead) - - - - - X
- **Scrophularia marilandica** (Late Figwort) - X X X - -
- **Senecio aureus** (Golden Ragwort) - X X X - X
- **Silphium integrifolium** (Rosinweed) - X X - X -
- **Silphium laciniatum** (Compass Plant) - X X X - -
- **Silphium perfoliatum** (Cupplant) - - - X X -
- **Silphium terebinthinaceum** (Cupplant) - - - X X -
- **Smilacina racemosa** (False Solomon’s Seal) - X X X - X
- **Solidago caespitosa** (Goldenrod) - - - - X X
- **Solidago rugosa** (Rigid Goldenrod) - - - - X X
- **Solidago speciosa** (Goldenrod) - X X X X - -
- **Sparganium eurycarpum** (Bur Reed) - - - X X -
- **Tephrosia virginiana** (Prairie Spiderwort) - - - X X -
- **Thalictrum aquilegifolium** (Aquilegia) - - - X X -
- **Tradescantia virginiana** (Purple Flowering) - X X X - X
- **Verbena hastata** (Purple Vervain) - X X X X - X
- **Vernonia fasciculata** (Ironweed) - - - - - X
- **Vernonia gigantea** (Tall Ironweed) - X X X - X
- **Vernonia missurica** (Missouri Ironweed) - X X X - X
- **Vernonia virginiana** (Golden Alexander) - X X X X X X

### Shrub & Vines
- **Amorpha canescens** (Leadplant) - X X X - - -
- **Ceanothus americanus** (New Jersey Tea) - X X X - - -
- **Cephalaria occidentalis** (Buttonbush) - - - X X X
- **Clematis virginiana** (Virgin’s Bower) - - X X X -
- **Hypericum prolificum** (Shrub St. John’s Wort) - X X X - - -
- **Rosa carolina** (Pasture Rose) - X X X - - -
- **Rosa palustris** (Swamp Rose) - - - X X X
- **Spiraea alba** (Meadow Sweet) - - - X X X
- **Spiraea tomentosa** (Steeplebush) - - - X X X

### Legend
- **Sun** = Full Sun
- **Soil** = Clay
- **Status in Michigan** = Special Concern
- **SC** = Special Concern
- **C** = Clay
- **L** = Loam
- **M** = Muck
- **X** = Extirpated
- **S** = Sand
- **T** = Threatened
- **NN** = Non Native in MI
- **M** = Muck
- **X** = Extirpated
### Graminoids (Grasses, Sedges and Rushes)

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Successful establishment of a native planting requires proper site preparation, the right plant selection based on the conditions of your site, the best method and time of installation, and a diligent maintenance schedule for the first three years after installation. These guidelines should be helpful in planning and implementing a successful native plant project.

STEP 1: Project Planning & Design

The time you take to properly plan and design your project will pay off and result in a more successful and long lasting native plant establishment which will offer the environmental, economical and aesthetic benefits you are trying to achieve. The tips listed below will be helpful as you plan your project.

Determine the site conditions

- **Soil type**: Look at and feel the soil and determine whether you have sand, loam, clay, or organic soil. Sandy soil is gritty and will not stick together or clod. Loamy soils stick together, but will easily crumble. Clay soil is sticky with little or no grittiness and will form a hard clod that will not easily crumble. Organic soil, or muck, is dark black in color, is frequently mixed with mineral soil (sand, loam or clay) and occurs on former wetlands. Be sure to choose species based on your soil type.
- **Hydrology or Moisture level**: Determine if the site is dry, medium or wet in nature. Does the area puddle and retain water or does water drain quickly after rainfall? Is the site in a low-lying area or upland? Is the site near a river, lake or spring? Choose species that would thrive at your site. Species composition differs greatly between dry prairie, mesic prairie, wet prairie, and wetland habitats.
- **Topography**: Determine the slope of the site. The slope may influence the moisture levels and/or sun exposure. Keep in mind that steeper slopes may limit the methods of installation.
- **Sun exposure**: Be aware of how much sun the area will receive. Most sun-loving plants need at least a half-day of sun. If you have less than a half-day of sun, you need to select plants that tolerate part-sun or shade.
- **Existing vegetation**: The site should be inspected closely by someone familiar with the native and non-native plant species found in the area. If specific native species are present in sufficient numbers, the site may need to be handled as a restoration project, requiring appropriate methods to protect the existing plants. If the site has invasive species present, prepare a plan for the removal of these species prior to the natives being introduced. This is a critical element that should not be overlooked.

Research typical plant species in the area

It is a good idea to research the history of the land prior to European settlement. Maps and natural community information are available on the Michigan Natural Features Inventory website at http://mnfi.anr.msu.edu/data/index.cfm. You should be able to determine the plant community that existed prior to development which would be a good clue as to what plant species will do best on your property. If similar natural areas are present near your site it may be helpful to determine what native species are found there.

Select proper species

Choose a mix of wildflowers and grasses based on your research. Select species that are suitable for your site based on soil type, hydrology, and sun exposure. This will be critical for the success of your native planting. Add as many species as possible for greater diversity. A well-designed mix will contain flowers that bloom at different times throughout the season, will include warm and cool season grasses for structure and diversity, and will attract a variety of wildlife. Your project size, objectives and budget will help determine the level of seed mix that is appropriate for your site.

Obtaining native seed

- **Local Genotype**: Consider purchasing native seed and plants from local or regional sources (Michigan or Great Lakes). Local genotypes are recommended because they are naturally adapted to the area and preserve our local diversity. Members of the Michigan Native Plant Producers Association (MNPPA) produce and provide native seed and plugs that originate from Michigan. MNPPA members are committed to enhancing the diversity and health of Michigan’s unique natural heritage.
Planting Guidelines continued

- **Seeding Rates**: You will need to determine the size of the area, in acres or square feet. This will be very important so that you order a sufficient amount of seed. There are 43,560 square feet per acre. You should order a little more seed just to be safe (perhaps 10%). Seeding rates of grasses should range from 3 to 7 lbs per acre, and forbs should range from ½ to 4 lbs per acre, for a total mix of 6–10 lbs of seed per acre. Seeding rates depend on site conditions, preferred showiness, and budget.

- **Cover Crop**: Since natives are slow to germinate and establish, annual cover crops such as seed oats or annual rye, which germinate quickly, are often used to help stabilize the soil and compete against weeds the first year. Seeding rates of the cover crop range from 10 to 40 lbs per acre. Cover crop also acts as a carrier, making the native seed easier to disperse accurately.

- **Pure Live Seed (PLS)**: Native seed tends to be quite bulky or fluffy, and may contain a fair amount of inert material. The germination rates can be quite variable, sometimes as low as 50% or less. For these reasons native seed is often sold on a Pure Live Seed (PLS) basis. This means that enough bulk seed is provided to the purchaser to ensure that the correct amount of viable seed is provided. For example, if a customer orders 10 lbs of a species that is only 50% PLS, 20 bulk lbs of the seed would be provided, and the customer would be charged for the 10 PLS lbs of actual, viable seed. Most suppliers sell native grasses this way, and some also do this for native forbs.

**Plan the appropriate timing of installation**

Planting can be done in the spring, or as a dormant seeding in late fall or winter. Each has its own advantages and disadvantages. As you think about scheduling installation, keep in mind that you should plan on at least a few months and up to 2 years of preparation before seed installation.

- **Spring seeding**: If planting in spring, native seed should be planted between April 15 and June 15. A spring seeding will generally favor the warm season grass species over the forb species during the first year. Many of the forb seeds that do not germinate the first season will appear the second year.

- **Dormant seeding (late fall – winter)**: Dormant seeding is timed so that seeds will not germinate until the following spring. Dormant seeding can be done anytime when there is no snow on the ground from late-fall to mid-winter (mid October – February). Most people choose to plant mid-October through late November to avoid planting in frozen soil. It can work after the ground freezes if a no-till drill is used to cut into the frozen soil. Planting in the winter may be a good idea in areas that are too wet during the rest of the year, or when areas need to be supplemented with new seed. Dormant seeding is generally more favorable to forb species than to grass species.

**Caution**: Avoid planting in the summer and early fall (July – September). There is a significant risk of heat and drought during the summer months and you might waste a lot of time and money in seed and installation. Also, resist planting too early in the fall. The soil is warm enough in early-fall for germination to take place, but root growth on the newly sprouted natives is minimal and may not survive the winter. Fall plantings should be delayed until the air and soil temperatures have cooled off — usually after mid-October.

**STEP 2: Site Preparation**

Arguably the most important step in establishing a successful planting is proper site preparation. One may feel hesitant about delaying the installation, but the site preparation is critical for achieving a successful planting. Many people underestimate the amount of weeds in the seed bank. Eradicating the existing non-native and/or invasive species is vital before installation of the native seeds.

You should plan on preparing your site at least one full growing season before installation, and depending on the species on the site, it may require up to two years of preparation. If this process is not done thoroughly, aggressive non-native species will compete (and may ultimately win) against the native plants you wish to establish.

The appropriate site preparation techniques will be dependent on the desirable and undesirable vegetation that already exist on the site. If you determine there is a significant amount of desirable plant life with relatively few non-native invasive species, you should consider restoring or enhancing the site. Remove unwanted species by pulling, spot herbiciding, or burning, and then inter-seed with native seed. If there is too much undesirable vegetation to make rehabilitation worthwhile, one should consider starting fresh. You will need to proceed by eliminating all existing vegetation by either applying herbicides, smothering, cultivating the area, or a combination of these methods.
Eradicating existing vegetation

- **Herbicide**: If your site is quite large or if there is little or no native vegetation naturally occurring, careful application of herbicide can be an effective tool for vegetation removal. The number of herbicide treatments will depend on the condition of the site. Agricultural fields of corn or soybeans may only require one or two treatments late-spring, prior to installation. Old fields (fallow or pasture fields) may require several treatments per year for one or two years before installation. All weed species should be eliminated before installation. Use a broad-spectrum, non-persistent glyphosate herbicide. There are many options and factors to consider when using herbicides. Consult with or hire a licensed commercial applicator and always read and follow the label completely when using herbicides.

- **Smothering**: On small areas, such as portions of your lawn, you can smother and kill the vegetation without the use of chemical herbicides. Cover the vegetation with black landscaping fabric, leaf compost, or grass clippings, and leave in place for an entire growing season.

- **Cultivating**: Cultivation is labor intensive, and often brings up weed seeds, but you can avoid the use of chemicals if you are willing to cultivate the field beginning in spring and continuing through fall. Cultivate every 2–3 weeks at a depth of 4–5 inches using a harrow, springtooth or rototiller to destroy the roots and kill the weeds. Waiting longer than 2–3 weeks will allow perennial weeds to resprout. Plants with deep rooted rhizomes, such as Canada Thistle and Quackgrass may not be completely eliminated using cultivation for a single season, and may require herbicide treatments in conjunction with the cultivation. After most weeds have been eliminated, the cultivation depth should be made shallow for several months prior to seeding, as a firm soil bed is necessary for native establishment.

Converting lawns

If you wish to convert a section of your lawn to prairie or native garden, you could smother the sod for 2–3 months, cut the sod, or treat with herbicide. An effective and practical method for naturalizing a large area of lawn is to treat with a glyphosate herbicide in mid-spring when the grass is actively growing. Repeat herbicide in summer when some grass reemerges and then introduce seed (in late-fall or the next spring) into the dead sod using a native no-till drill. You could hand broadcast the seed if you first go over the dead sod with a dethatcher to bring up some loose soil. Be sure to set the dethatcher deep enough to bring up loose soil.

Preparing the seed bed

A level, firm seed bed that is relatively free of debris is recommended for proper installation. If your soil is soft and loose, it should be packed down with a heavy roller or culti-packer before and after installation. A good test method for adequate soil firmness is to walk over the seed bed and observe your footprints. If your print sinks in more than ¼ or ½ inch, the seed bed is too soft. If trees have been taken out, be sure to level the ruts and remove limbs and roots prior to seeding. This saves time during installation and prevents damage to equipment. If the area to be seeded doesn’t have much vegetation or old crop debris, most native no-till drills can successfully operate without clogging. Old soybean stubble usually presents little problem, however old corn stalk debris can plug the drill.

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**STEP 3: Installation**

The method of installation will depend on the size of the planting, the condition of the soil, and your budget.

Seeding Methods

- **Hand-broadcasting**: For areas less than an acre or two, you can broadcast the seed by hand if the seed bed is prepared correctly. The mixed native seed can simply be put into a bucket and scattered by hand. Since it is challenging to distribute small quantities of native seed over an area, it is recommended to bulk up the seed mix by using a filler material such as cracked corn, sawdust, peat moss, or vermiculite. Mixed thoroughly with the native seed, it will aid in giving you more quantity to distribute over the site. Cover crop seed, such as annual rye or seed oats also aid in “bulking up” the seed, making it more flowable.
Hand crank seeders can be used to scatter seed although some of the native grass and forb seeds are quite fluffy and will not flow through the dispersal holes. If you use a hand crank seeder, you may have to continually stir the seed with your hand to keep it flowing through the dispersal openings.

The goal is to distribute the seed evenly. Scatter the seed carefully and be sure not to run out before covering the entire area. A recommended strategy to accurately distribute the seed would be to divide your total seed mix in half and scatter the first half of the seed over the entire area, then scatter the second half of the mix over the area perpendicular to the first pass. If it is too windy, waiting for wind to decrease is recommended.

The seed should immediately be rolled or raked into the top surface of the soil for best results. If the area is too large to rake by hand, use a tractor or truck to pull a light piece of fence or very light drag.

- **Native No-till Drill**: For larger areas, areas with hard ground, or areas with existing vegetation or debris, a native no-till seed drill is recommended. Truax and Great Plains are the primary brands available. No-till drills cause minimal soil disturbance, and do not require the soil to be tilled before planting. These drills plant seed into rows by opening a shallow groove in the soil. A Truax drill has three seed boxes, one for fluffy seeds (most grasses), another box for very small seeds (many forbs), and a third box for the cover crop or large native seeds. Calibration of the drill is critical and complicated and requires continual monitoring during installation. Drill adjustment for proper depth of seed placement is also vitally important; adjustments to the drill need to be made on a site-by-site basis, and sometimes with differing soil conditions within the same site. You may wish to hire a firm who specializes in native seed drilling. Many seed dollars are wasted and many projects unsuccessful due to improper knowledge of drill operation.

- **Culti-packer native seeder**: For bare soil, you could use a native culti-packer seeder. A culti-packer seeder firms the seed bed first, drops the seed, and then a roller packs the soil to ensure good seed-to-soil contact. These machines are less common, but are preferable to the no-till drill when planting into bare soils.

**Watering**

Watering is not necessary after fall plantings. Watering following a spring seeding is not essential either, however, the seeds may benefit from watering during the first 3 to 6 weeks after a spring planting, especially if no rain has fallen for 7–10 days. If watering is practical for your site and you decide to water, you will need to continue to water periodically to keep the soil from drying out completely while plant seedlings are establishing. In a dry spring, a quicker establishment may result with supplemental watering.

**STEP 4: Post-Planting Management**

Controlling weeds is the biggest priority the first three years after an area has been planted with native seed. The native seed you plant will only grow a few inches the first year; weeds will grow much thicker and taller than the natives and can shade out the native seedlings. Diligent weeding the first three years will greatly reduce the amount of weeds you have on your native establishment. Once the native species mature, they should be able to crowd out the weeds on their own.

**First Year**

Mowing is the primary tool for controlling weeds the first year. Keep the vegetation mowed to a height of 4–6 inches and mow when the vegetation reaches...
10–12 inches. This may require mowing two to three times depending on the amount of rainfall. Mowing keeps the weeds from becoming too tall and shading out the natives and it also prohibits the weeds from setting and dropping new seed into the soil. Stop moving at the end of the growing season (September). Some additional weed growth at this time of year will help protect the seedlings during their first winter.

Hand pulling weeds generally is not recommended the first year because of the risk of pulling out the seedlings and bringing up new weed seeds to sprout. In general, spraying herbicide on a native planting is discouraged. You can, however, consider spot treating with herbicide the aggressive weeds, such as Canada Thistle or Spotted Knapweed that can become very invasive if allowed to persist. Spot spraying needs to be done very carefully by a person who has experience in the use of herbicides as well as in the identification of all of the plant species present. The proper herbicides and rates depend upon the target species as well as the season of the year.

For some plant species hand-wicking with herbicide may be desirable. Mix up a strong solution of the appropriate herbicide and put the solution in a spray bottle or other non-spill container. Wear rubber gloves and put an absorbent cotton glove over the rubber glove on one hand, carefully saturate the cotton glove, and apply the herbicide to the leaves and stems of the plant. Try not to touch any desirable seedlings. It is imperative to closely monitor the gloves to make sure no tears in the rubber gloves allow the herbicide to contact the skin of the applicator.

Second Year
Weeds will often dominate in the second year as well, so continuing to mow is vital. You should mow the vegetation during the second year to a height of about 8 inches. Mow when vegetation reaches 12–18 inches. Some of the natives may be up and blooming but it is worth sacrificing the flowers at this stage to achieve a more successful native planting in the long term. The natives will not be killed by this mowing.

Hand pulling weeds and spot treating with herbicide may be needed and beneficial during the second year. Common competitive weeds in the second year include Spotted Knapweed, Canada Thistle, Burdock, Wild Parsnip, Sweet Clover, and Queen Anne’s Lace. Mowing them when they are in full bloom will set them back and prevent them from setting and dropping seeds.

Burning the second year is not usually recommended; normally there is not enough fuel to sustain a fire and the young plants may be damaged by burning.

Third Year and Beyond
Burning the third year, and on a regular basis in future years, is the most important tool to manage the weeds on your property. If burning doesn’t occur, a thatch layer can accumulate on the ground and cause poor growth or cause plants to die out completely. Prescribed burning kills or at least reduces weed growth and also stimulates new growth of the native species.

Spring burns in March or April are most effective for most plantings. Only experienced, trained crews should perform the prescribed burn. Be sure to check with your local fire regulations and obtain the appropriate permits. A wide path (10–15 feet) around the perimeter of the native planting, called a burn lane, acts as a firebreak and should be kept mowed throughout the growing season.

After the third year, burning should take place every one to three years. Consider a burn rotation in which only 1/2 or 1/3 of the area is burned each year. This will protect over-wintering butterflies, moths, as well as early nesting birds by leaving vital habitat for them to utilize.

If burning is not allowed in your area or it is not an option for other reasons, annual mowing, although not as effective, can be a good substitute. Mow down close to the surface (6 inches) in early spring (February through April). Note that some ground-nesting grassland birds nest as early as April, so the earlier the better.

Spot treating with herbicide may still be needed if weeds persist, however, once your natives are established, they should require minimum maintenance.
Environmental Benefits of Native Plants

Restore Biodiversity • By planting native plants we preserve Michigan’s botanical and biological heritage.

Create Wildlife Habitat • Native plants provide food and shelter for birds, butterflies and other wildlife that rely on native plants for their survival.

Improve Water Quality • The deep root systems of native plants absorb and filter water before it runs into lakes and rivers.

Conserve Water & Energy • Native plants are adapted to our local soils and climate and require minimal water and maintenance.

Reduce Global Warming • Native plants store carbon in their roots permanently removing it from the atmosphere.