

**NATIVE PLANT COMMUNITIES** provide ecological support to fruit and vegetable growers by increasing the number and diversity of beneficial insects and pollinators. This guide provides a recommended species list and methodology for establishing a native planting on Indiana small farms and gardens. These species are found to be especially productive in providing habitat for pollinators and for beneficial insects that suppress crop pests.

Native plantings can be beautiful, but their benefits go far beyond aesthetics. Beneficial insects include, but are not limited to, soldier beetles, predatory wasps, tachinid flies, and an assortment of bees. Providing habitat in close proximity to crop production can have an impact on aphids, colorado potato beetles, and other pests through predation and parasitoidism.

# NATIVE PLANTINGS

## FOR BENEFICIAL INSECTS & POLLINATORS



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TOP: Snowberry Clearwing Hummingbird Moth on Bergamot

BOTTOM LEFT: Soldier Beetle on Virginia Mountain Mint BOTTOM RIGHT: Nodding Wild Onion

# RECOMMENDED SPECIES LIST

Target 70%–80% forbs (wildflowers) and 20%–30% graminoids (grass and sedges). Choose a diversity of plants with different bloom periods to provide continuous flowering throughout the year.

**Stature:** Short: <24"  
 Medium: 24-48"  
 Large: >48"

**O’C’ Spacing** On-center spacing indicates the spacing between plants. When two plants with different spacing are adjacent, use the larger of the two between them.

**Field Strip (FS)** Plants suited for plantings in close proximity to crops, such as beds or strips within the growing area. These plants are non-flopping, cast little shade, and can tolerate full sun and hot conditions.

**Field Border (FB)** Plants suited for perimeter and pocket plantings.

**Tough (T)** Plants that show resiliency in poor soil and hot conditions.



Dense Blazing Star

Latin Name	Common Name	Stature	Pollinator Value	O’C’ Spacing	Bloom Season/Color							FS	FB	T	
					April	May	June	July	Aug.	Sept.	Oct.				
<b>Forbs (Wildflowers)</b>															
<i>Allium cernuum</i>	Nodding Wild Onion	Small	Medium	12"									•	•	•
<i>Amorpha canescens</i>	Leadplant	Medium	High	18"									•	•	•
<i>Asclepias syriaca</i>	Common Milkweed	Large	Very High	24"										•	
<i>Asclepias tuberosa</i>	Butterflyweed	Small	Very High	18"									•	•	•
<i>Baptisia australis</i>	Blue Wild Indigo	Large	High	24"										•	
<i>Coreopsis lanceolata</i>	Lance-leaf Coreopsis	Small	Medium	12"									•	•	•
<i>Coreopsis palmata</i>	Plains Coreopsis	Small	Medium	18"									•	•	•
<i>Dalea purpurea</i>	Purple Prairie Clover	Small	High	12"									•	•	•
<i>Echinacea purpurea</i>	Purple Coneflower	Medium	Very High	18"									•		
<i>Geranium maculatum</i>	Wild Geranium	Small	Medium	12"										•	•
<i>Heliopsis helianthoides</i>	False Sunflower	Large	Medium	18"										•	
<i>Helianthus occidentalis</i>	Western Sunflower	Medium	High	24"									•		•
<i>Liatris ligulistylis</i>	Meadow Blazing Star	Medium	Very High	12"										•	
<i>Liatris pycnostachya</i>	Prairie Blazing Star	Large	High	12"										•	



Latin Name	Common Name	Stature	Pollinator Value	O'C' Spacing	Bloom Season/Color						FS	FB	T		
					April	May	June	July	Aug.	Sept.				Oct.	
<b>Graminoids (Grasses / Sedges)</b>															
<i>Bouteloua curtipendula</i>	Side-oats Grama	Medium	Larval food	12"									●	●	●
<i>Carex granularis</i>	Meadow Sedge	Small	Larval food	12"									●	●	
<i>Schizachyrium scoparium</i>	Little Bluestem	Medium	Larval food	18"									●	●	●
<i>Sporobolus heterolepis</i>	Prairie Dropseed	Medium	Larval food	18"									●	●	



Native planting at community garden



Little Bluestem



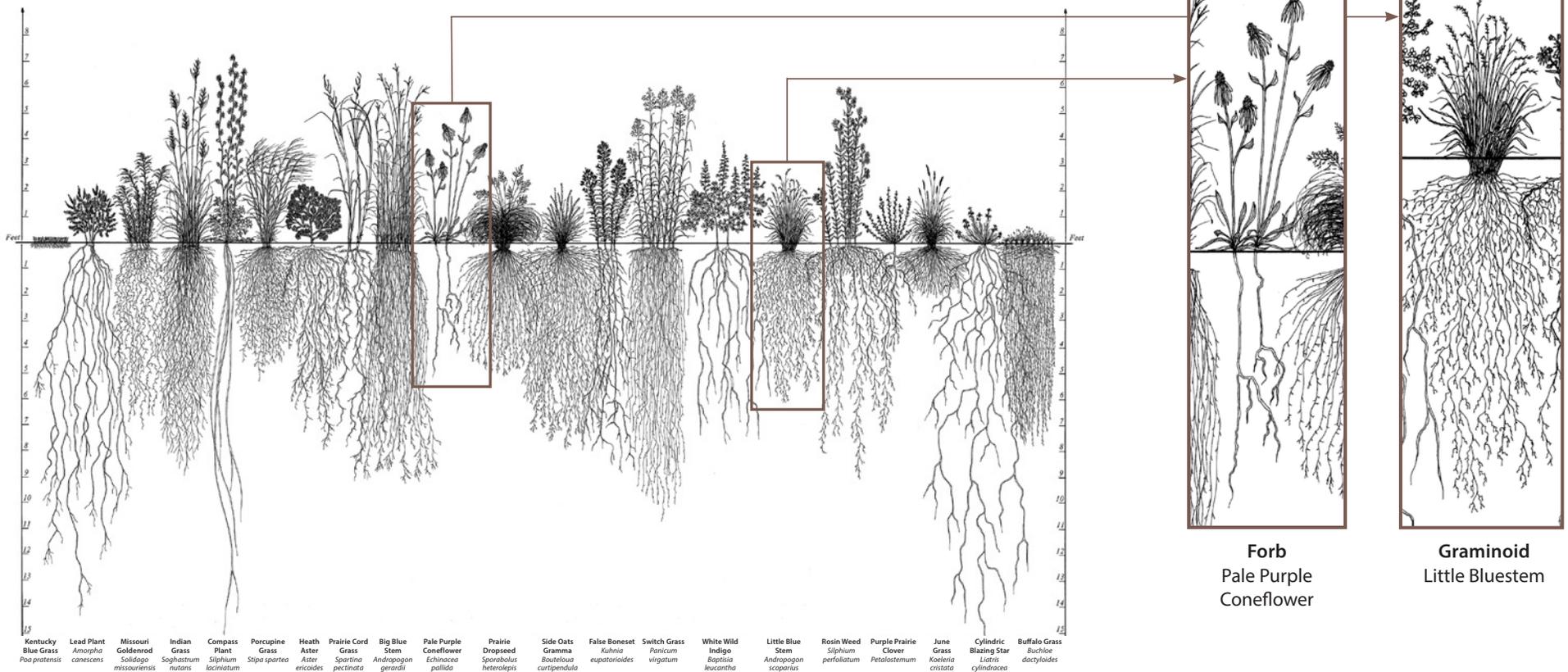
Native rain garden planting at Indiana State Fairgrounds

# ROOT SYSTEMS

**PLANT COMMUNITIES** have two equally important portions. The above-ground photosynthetic portion of the plant communities is the obvious one to most people, however the below ground system of roots and symbiotic fungi and microorganisms is equally important to the community. The structure of roots systems is a very important component of how this below ground community functions. As seen in the diagram below, herbaceous broadleaf forbs tend to either have a prominent taproot with some side branches or a coarsely fibrous root system. In contrast, graminoids including grasses and sedges tend to have densely fibrous fine-textured roots that more thoroughly occupy the root zone. Cool season graminoids typically have much shallower root systems than warm season graminoids

since soil moisture is typically more abundant during the spring. Warm season grasses have both densely fibrous and deep root systems, making them very resilient and excellent soil stabilizers once established. Because of this structural difference in the roots systems, graminoid communities tend to be more stable and resistant to invasion by weedy species than communities dominated by forbs. The most stable herbaceous communities contain forbs growing within a matrix of graminoids as is typically seen in our native prairies. A good target for field borders and field strips is 20%-30% grasses and sedges and 70%-80% forbs. The diversity and biomass of these roots systems improve organic matter, water infiltration, and soil health.

## ROOT SYSTEM OF PRAIRIE PLANTS



# PROCEDURES FOR ESTABLISHING A NATIVE PLANTING

## 1. ELIMINATE EXISTING VEGETATION

### Option A: Mechanical

Remove the sod and the top inch of soil that contains the majority of weeds seeds. This is most effectively done with a sod-cutter but may also be achieved with hand tools. After the sod has been taken away, remove any remaining perennial taproots such as dandelions.



Cutting sod to prepare for planting.

Following this removal, the bed should be ready to plant. If time will pass between sod cutting and planting, cover with newspaper and mulch. Tilling in the sod is not recommended as rhizomatous

grasses are difficult to kill with repeated tilling, especially if the soil is moist. Further, tilling stimulates germination of the seed bank of annual weeds.

### Option B: Cover Crops, Sheet Mulching, and Occultation

Regenerative agricultural practices can be utilized to transition beds to native plantings. At the SWCD Eagle Creek Demonstration Garden, an oats cover crop was planted in early fall to suppress weeds. The following spring, a layer of newspaper and two inches of finely shredded hardwood mulch was applied on top of the winter-killed oats residue. Holes were then cut through the mulch to plant the native plugs. Soil moisture should be adequate at the time of sheet mulching. Broadforking can help loosen the soil in heavy clays.

Occultation refers to blocking out light from the existing vegetation. Some growers use black silage tarps to eliminate weeds or encourage decomposition of crop residue in transition between crops. These tarps can also be utilized to eliminate existing vegetation in preparation for a native planting.

Results may vary depending on temperature, duration of tarping or mulching, and existing weed pressure.



Tarping to eliminate existing vegetation.



Sheet mulching with newspaper and hardwood fines.

# PROCEDURES FOR ESTABLISHING A NATIVE PLANTING *(continued)*

## 2. INSTALL NATIVE PLANTS

### Option A: Installation of native planting via plug (recommended)

- April 10 through May is often the optimal time to plant native plugs. The beginning of September can also be a sweet spot due to warm soil and potential for rains. Frost heaving can be an issue if planted after September 21.
- Create a hole the depth of the plug. This is most effectively done with a gas-powered one-person auger with a 3 inch diameter bit. However, holes may also be dug with a trowel.
- Once the hole is constructed, the plant should be removed from the plastic container and plant with the top of the

soil plug level with surrounding soil.

- Backfill and firm the soil around the plug. Water thoroughly to settle the soil around the plug. Apply 1-2 inches of an organic mulch such as leaf compost or finely shredded hardwood mulch. Mulching can also be done before planting.
- Taper mulch down to nothing near stem of plant to prevent crown rot.
- Apply an inch of water per week for the first six weeks during the establishment period. Once established, water only during extremely dry periods. If plants are wilted in the early morning, additional water is needed.



Planting native plugs



Aligning planting rows with string

### Option B: Installation of native planting via seeds

*(For larger blocks where plugs may be cost-prohibitive. Not recommended for in-field strips. Plan on 3 to 5 years for full establishment via seeds.)*

- A. Order the appropriate quantity of seed from a reputable native seed provider. Plan on at least 40-60 seeds (PLS) per square foot.
- B. Seeds may be broadcast during the dormant season (Dec 1-Feb 28) or spring planting window (April 1-June 15). Plant seed no deeper than the width of the seed.
- C. Many native species require getting wet and freezing to crack open. Dormant seeding will help some species to become established faster in the planting. Ideally, time seeding prior to a snow or when temperature fluctuations are going to cause the ground to freeze and thaw.
- D. If seeding in spring, culti-packing rough soil before broadcasting the seed often prevents seeds from being planted too deep.
- E. Mix the seed with a sterile potting mix or other dry inert material with a ratio of one part seed to 3 parts inert material.
- F. Divide the seed/material mix in half. Spread half of the seed/material mix over the entire area. Then spread the remaining half over the entire area. This procedure ensures not running out of seed before the entire area is covered.
- G. Lightly mulch the seeding with straw so approximately half of the soil is visible through the straw.
- H. Keep the seed bed moist for the first 8 weeks to insure even germination for establishment of perennials or 2 weeks for establishment of annuals.

# PROCEDURES FOR ESTABLISHING A NATIVE PLANTING *(continued)*

## 3. MAINTENANCE STRATEGIES FOR NATIVE PLANTINGS

During the first couple of years, most prairie grasses and wildflowers may show limited above ground growth. During this time, the plants spend a lot of energy growing deep, extensive roots systems. Remember the saying, “The first year they sleep, the second year they creep, the third year they leap.”

### Spring

Monitor for and remove cool-season weeds such as assorted mustards, annual brome species (*Bromus spp*), sweet clover (*Melilotus spp*), and Canada thistle (*Cirsium arvense*). Renew mulch along the edges and any significant areas of bare soil. Shredded hardwood (2” or less) should be added every two years and composted leaves may be added annually as a soil conditioner.



Canada Thistle



Sweet Clover

Photos: Smooth Brome: John M. Randall, The Nature Conservancy, Bugwood.org; Canada Thistle: Jan Samanek, Phytosanitary Administration, Bugwood.org; Common Ragweed: Ohio State Weed Lab, The Ohio State University, Bugwood.org; Foxtail: iStock.com/odyphoto; Johnson Grass: James H. Miller, USDA Forest Service, Bugwood.org



Common Ragweed



Foxtail



Johnson Grass



Smooth Brome

### Summer

Monitor for and remove warm-season weeds such as ragweeds (*Ambrosia spp*), pigweeds (*Amaranthus spp*), foxtail (*Setaria spp*), and other typical annuals. Also monitor for aggressive rhizomatous perennials such as Canada goldenrod (*Solidago canadensis*), Johnson grass (*Sorgham halepense*), and Smooth Brome (*Bromus inermis*).

### Fall

Remove any remaining annual weeds prior to seed dispersal. Autumn leaves can be chopped up with a lawn mower and spread in the planting areas.

### Winter / Spring

Leave native plants' woody stems erect to provide habitat for cavity-nesting bees and insects. In mid spring, cut the planting down to 15 inches in height. Cut stems can be stuck in the soil to provide additional habitat.