

Resources

PA Department of Conservation and Natural Resources

Watershed Forestry Program | Bureau of Forestry
Lawn to Habitat Program

Rachel Carson State Office Building
6th Floor, PO Box 8552, Harrisburg, PA 17105

Request Help Converting Your Lawn to a Meadow
| Commonwealth of Pennsylvania

<https://www.pa.gov/services/dcnr/request-help-converting-your-lawn-to-a-meadow.html>

Xerxes Society for Invertebrate Conservation

Pollinator Conservation Program

1631 NE Broadway Street, #821, Portland, OR 97232

Pollinator Conservation Program | Xerxes Society

<https://xerxes.org/pollinator-conservation>

Audubon Society of Western Pennsylvania

614 Dorseyville Road, Pittsburgh, PA 15238

Establish a Native Meadow | Audubon Society of Western PA

<http://www.aswp.org/pages/establish-a-native-meadow>

Prairie Nursery, Inc.

PO Box 306, Westfield, WI 53964

Guide to Establishing a Native Prairie Seed Mix

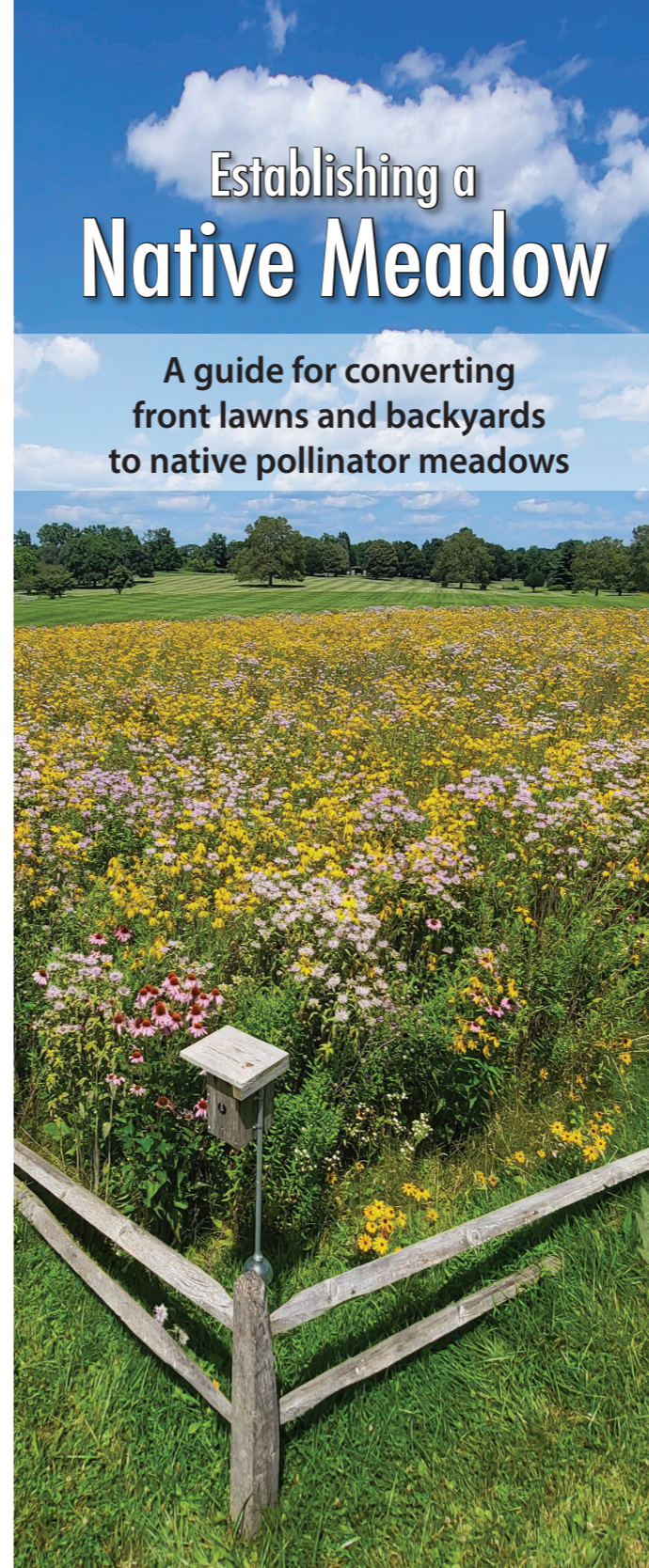
<https://www.prairienursery.com/media/pdf/seed-mix-establishment-guide.pdf?srltid=AfmBOopdcz6K9PWcnciDfFu7C4pVnnYXOLF2zL98SC9uEBUliJG-l4ky>
www.prairienursery.com

Ernst Conservation Seeds

8884 Mercer Pike, Meadville, PA 16335

www.ernstseed.com

In addition to the above organizations, your local Penn State Extension and County Conservation District offices may have staff and resources available to help you plan and establish a native pollinator meadow.



Establishing a Native Meadow

A guide for converting front lawns and backyards to native pollinator meadows

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Adapted with permission from the Guide to Establishing a Native Seed Mix by Prairie Nursery, Westfield, WI.

Establishing a native meadow is a long-term investment in your landscape and requires planning. The range of possible site conditions which may be encountered make it impossible to write standard instructions. These guidelines provide steps for successfully converting a lawn to a meadow in most situations. There are many resources available to assist you in converting your lawn to meadow and we encourage you to consult them in your planning process (see Resources at the end of this document).



When to Plant

TIME	ADVANTAGES
FALL September 1 up until the first frost.	<ul style="list-style-type: none"> Seed overwinters and comes up in spring when conditions are right. This breaks most seed dormancies naturally over the winter. Flowers have increased spring germination with fall seeding. Good for all soil types, but highly recommended for droughty, sandy soils and wet and clay soils. Fall seeding does not require watering as the seeding is dormant.
EARLY SPRING March-April	<ul style="list-style-type: none"> Results in better flower germination than in late spring. Spring rains make watering less critical. Best option for sandy soils if unable to plant in the fall.
LATE SPRING May-June	<ul style="list-style-type: none"> More time for good soil preparation, particularly on heavy soils. More time for spring weed control prior to seeding. Optimal time for ideal germination of warm season grasses. Even at this time of year, watering is generally unnecessary, as native seeds will remain dormant until moisture conditions are right for germination.

These guidelines for converting lawns to meadow are specifically for property owners of homes as well as schools, churches, libraries and other landscapes composed of lawn. For guidance on how to establish native meadows on new construction sites, old fields and existing cropland, Prairie Nursery also provides options and steps for those landscapes. See *Guide to Establishing a Native Prairie Seed Mix* (in Resources at the end of this document).

Meadow Wildflowers



Butterfly Weed
Asclepias tuberosa



Aromatic Aster
Symphyotrichum oblongifolium



Eastern Purple Coneflower
Echinacea purpurea



Wild Bergamot
Monarda fistulosa



Wild Blue Lupine
Lupinus perennis



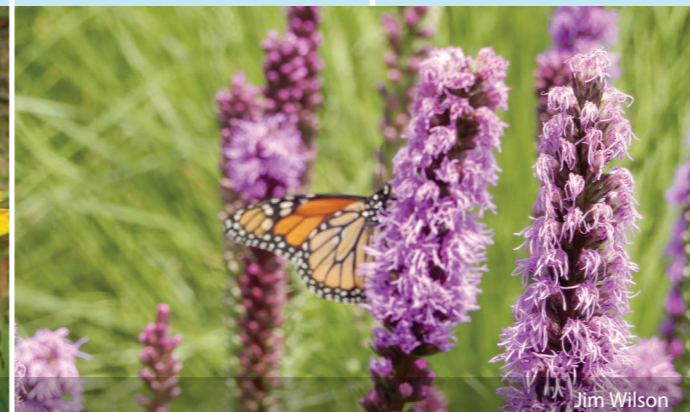
Black Eyed Susan
Rudbeckia hirta



Spiderwort
Tradescantia ohiensis



Lance-leaved Coreopsis
Coreopsis lanceolata



Blazing Star or Gayfeather
Liatris spicata

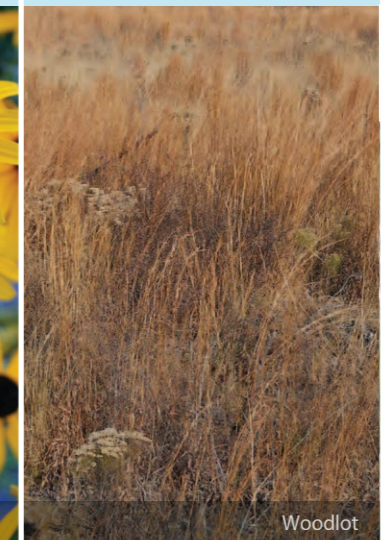
Grasses



Canada Wild Rye
Elymus canadensis



Little Bluestem
Schizachyrium scoparium



Broomsedge
Andropogon virginicus



Sideoats Grama
Bouteloua curtipendula



Purple Lovegrass
Eragrostis spectabilis



Prairie Dropseed
Sporobolus heterolepis



It's important to rake off as much dead vegetation and clumps of sod and thatch and fist-size stones from your meadow site before seeding it as you can.

STEP 1: Preparing the Site

To prepare your lawn for planting, you must first eliminate the existing vegetation, which may consist of cool season lawn grasses, turfgrasses, perennial weeds, annual weeds or all of these types of vegetation. Existing vegetation will compete with meadow seeds for nutrients, moisture and sunlight. Although it is nearly impossible to remove all annual weed seeds from the seed bank stored in the soil, it is crucial to kill perennial weeds and rhizomes before planting. Perennial weeds will inhibit the growth and development of your meadow. Eliminating perennial weeds prior to seeding is essential for your meadow success. Site preparation may vary according to the condition of the lawn you are converting to a meadow, and on your preferred option for doing so, as outlined below. Regardless of the option you choose to prepare your site, it is a good idea to identify the most common species of grasses and weeds currently growing in your lawn. Some of the more aggressive perennial weeds, like Mugwort and Nutsedge, may require two full growing seasons of site prep. There are many apps and online resources to aid you in identifying the grasses and weeds in your lawn. When planting native meadow seeds, a soil test is not necessary. One of the many benefits of planting native wildflowers is their ability to do well in all soil types, from low fertility soils to high fertility soils and everything in between.

Options for Preparing an Existing Lawn

Smothering Option – Organic

- Cover the site with either black plastic, old carpet, plywood or a thick layer of leaves or newspapers, held in place to prevent blowing. Do not cover the leaves or newspaper with topsoil, as the soil may contain weed seeds. Instead, use plywood or landscape mesh stapled to the ground.
- Leave in place for one full growing season and remove in the fall or following spring.
- Prepare the seed bed.

Sod Cutting Option for Lawns Free of Perennial Weeds – Organic

- Remove the top two to three inches of grass and soil with roots using a sod cutter.
- Best for lawns that have been meticulously managed for years with herbicide.
- Prepare the seed bed.

Cultivating Option – Organic

- Cultivate three to five inches deep with a rototiller or other cultivator once or twice a month for one full growing season to kill the lawn.
- Remove clumps of sod and thatch and fist-size stones.
- Prepare the seed bed.

Herbicide Option

- Apply a glyphosate herbicide when the lawn is actively growing. Multiple applications may be needed throughout the growing season until the lawn ceases to regenerate.
- Be sure to read the label on the herbicide container for its proper use and safety instructions and wait 24 hours after the last application of herbicide before working the site.
- When the grass has turned brown and stops growing, turn the soil under no deeper than the dead sod using a steel garden rake or steel landscape rake attached to a garden tractor or ATV.
- Remove clumps of sod and thatch and fist-size stones.
- Prepare the seed bed.

STEP 2: Preparing the Seed Bed

Achieving good seed to soil contact requires a shallow, but well-tilled and finely graded soil surface prior to planting.

Preparing for Hand Broadcasting

Before seeding by hand broadcasting, rake the soil with a garden rake or drag the soil with a length of chain link fence attached to a garden tractor or ATV to smooth the soil before planting the seed.

STEP 3: Planting the Meadow Seed

Hand Broadcasting the Seed

- Start with a freshly raked seed bed free of rocks or clumps of soil and sod.
- Do not plant in wet soils. Wait until the soil is dry and workable before planting.
- Mix together the meadow seed, a cover crop of fall oats for fall plantings or a nurse crop of spring oats for spring plantings, and a carrier (pelletized lime, saw dust, peat moss, cracked corn, or clay cat litter). You will use two bushels (four 5-gallon buckets) of any carrier per 1,000 square feet of area you are covering with seed. Using this quantity of carrier is critical to achieve even distribution of the meadow seed. Do not skip this step or you will quickly run out of seed to cover your site. The recommended seeding rate for most native meadow seeds is 10 pounds per acre, which translates to ¼ pound per 1,000 square feet. About 100 pounds of fall oats per acre are recommended as a cover crop for fall seeding and 50 pounds of spring oats as a nurse crop per acre are recommended for spring seeding.
- After mixing the seed and carrier, divide the mixture into two equal parts.
- Hand broadcast one half of the seed mixture over the entire site, i.e., in a north to south direction. Then hand broadcast the second half of the seed over the site; walking perpendicular to the direction you seeded the first half. This “crisscross pattern” of seeding ensures even seed distribution.
- Firm the seeded area by rolling the site by hand with a push roller or a lawn roller towed behind a

garden tractor or ATV. Meadow seed requires firm seed to soil contact for good germination.

- Mulch the seeded area with approximately one inch of weed-free straw—do not use field hay as it contains weeds. Mulch can be laid by hand or blown onto the site mechanically. The mulch will help control erosion and help retain soil moisture during the germination period. To prevent the mulch from blowing away, cover the mulch with a photodegradable plastic or natural landscape mesh with one half inch openings to allow for unimpeded wildflower seedling development. Secure the mesh with landscape staples on three to five foot intervals.
- An alternative to mulch is a Rolled Erosion Control Product (RECP) manufactured from natural materials that are seed-free. RECPs are biodegradable erosion control blankets that protect the seeds from rainfall impact and train water flow to follow the fiber matrix to help maintain soil moisture under the blankets. Secure the blankets with six-inch sod staples at intervals per the RECP manufacturer’s recommendations. A good example of an RECP is Curlex excelsior blankets.

Hydroseeding

It is not recommended to hydroseed native meadows. Hydroseeding does not achieve firm seed to soil contact and will result in poor germination.

Watering

This is optional as native meadow seeds will germinate without supplemental watering; they will simply germinate more slowly without watering. If your site is small enough and watering is possible, water spring and summer seedlings regularly during the first six to eight weeks after planting for higher germination and seedling survival. Water just enough to keep the soil moist, every two to three days for 15 to 30 minutes early in the morning. Afternoon and evening watering encourages seedling loss by fungal attack. After eight weeks, there is generally no need to continue supplemental watering.

STEP 4: Post-Planting Maintenance

Year One

Weed control during the first growing season is essential. The perennial meadow seedlings grow slowly and are easily outcompeted by faster growing weeds that will inevitably germinate. It is critical that you follow these maintenance steps for weed control in order to achieve and sustain a successful meadow.

- Mow your meadow every time vegetation reaches a height of 12 inches. As a general rule, anything that grows taller than 12 inches in the first year is most likely a weed. Taller weeds shade out prairie seedlings. Mowing the vegetation to six inches will cut back taller weeds before they set seed, while leaving the shorter meadow seedlings unharmed.
- To mow, use a string trimmer or weed eater on small areas. On larger areas, a flail mower is the best choice. Flail mowers chop the cut vegetation instead of laying it on top of the meadow seedlings, where they could be smothered. If a flail mower is unavailable, a rotary mower or sickle bar mower may be used.
- In the first season, meadow seedlings rarely grow taller than four to six inches, with the possible exception of Black Eyed Susan. As difficult as it may be, it is recommended to cut all vegetation, including the tops of Black Eyed Susans. Cutting will not kill them.
- Do not pull weeds, as this will disturb and possibly destroy the developing prairie seedlings.
- At the end of the first growing season, leave the dead vegetation standing. This helps catch winter snows which helps insulate the soil and reduces winter frost heave.



A stand of Blazing Star or Gayfeather (*Liatris spicata*) in a native wildflower meadow.

Year Two

In early spring of the second year, mow the residual standing vegetation from the previous growing season as close to the ground as possible and rake off the cuttings. Mowing in early spring helps to set back non-native cool season weeds and grasses. Timing is very important when mowing your meadow. The optimal date for mowing can vary as much as a month, due to the differences in weather from one year to the next. This usually occurs sometime between April 1 and May 15, depending on your location and the weather in any given year. This is usually about the time we are mowing our lawns for the first time.

- Cutting the vegetation as low as possible and raking the site clean encourages soil warming, which triggers the warm season meadow plants to break dormancy.
- When the vegetation grows to 12 inches, mow the meadow again to about six inches, like you did repeatedly throughout the first year. This second mowing will cut off residual weeds before they set seed. Expect this second mowing to occur sometime in June. It will be your final mowing of the year.
- Do not mow the meadow again for the rest of the second year.

Year Three & Beyond

Do not mow your meadow at all in its third year. Let it go and let it grow. Beginning in spring of the fourth year, your meadow can be mowed for the first time to maintain its diversity and vigor. Mowing in early spring helps set back non-native cool season weeds and grasses. By waiting until the undesirable plants have initiated spring growth before cutting them, mowing will help curtail their growth and set them back, favoring the warm season meadow plants, most of which are dormant under the soil. As was done in early spring of the second year, mow your meadow to the ground and rake off the cuttings in the fourth year at the same time it was mowed and raked in its second year— at about the time most homeowners mow their lawns for the first time. If your meadow is much larger than one acre, you can skip raking off the cuttings.

- If your meadow is larger than one acre, it is recommended that you divide it into “management units.” Mow one half every other year, alternating from year to year so that each half is mowed every two years. This helps prevent invasion of woody plants as well as cool season weeds. Mowing less frequently than every other year can result in trees gaining a foot hold in your meadow.
- Leaving un-mowed sections of your meadow preserves overwintering butterfly, moth and other invertebrate pupae and eggs so that they can repopulate your meadow ecosystem that year. Do not mow after new plant growth has reached one foot or taller, as this could damage your meadow plants.
- Mowing every other year helps to create varying conditions from year to year, maintaining maximum plant and animal diversity in your meadow.

The First Four Years – What to Expect

Native meadow seeds will often germinate over a period of two to three years. Some will appear the first year, while others will come up in the second and even third and fourth year after the initial planting. Most perennial meadow flowers and grasses will not begin to flower until their third or fourth full growing season.

Patience is a virtue when establishing a meadow – follow these directions carefully and give your meadow time to develop. Although your meadow may appear to be a bit of a “weed patch” the first year or two, by the third year numerous flowers and grasses should begin to bloom and crowd out the weeds. Be vigilant in monitoring your meadow for weeds and follow the recommendations for weed control. Do not skimp on site prep—effective long-term weed control begins with one full growing season of site preparation as described in Step 1 at the beginning of this document.

Perennial meadow plants devote most of their efforts in the first few years to developing their famous root systems. They will not be readily apparent in the first few years, with little visible above-ground growth. However, these busily growing plants are steadily building the incredible root systems that will sustain them in future years. The deep roots of native meadow flowers and grasses give them long-term staying power that allows them to squeeze out annual and biennial weeds, and to return year after year, for decades.

