How To Plant Native Grass and Wildflower Seed

A Comprehensive Guide for Site Prep, Installation and Management

Sowing native seeds to create habitat is a rewarding process. However, some seeding areas will require some planning to ensure that your seeds get the best possible start. This guide will walk you through preparing your planting site, native seed installation and best management practices for the first growing season and beyond. Let's get started with Site Preparation.

Site Preparation for Native Seed

Before you plant your prairie, the site needs to be properly prepared. This can be a lengthy process depending on what you are starting with and the method of preparation that you choose. **This is often the most important step to a successful planting.**

The objective of site preparation is to create as clean a seedbed as possible. All soil has existing seed in it; this seed is called the seed bank. As you work soil mechanically with shovels, tillers or other means, you are bringing seeds in the seed bank to the surface where they will germinate. These seeds need to be depleted for the native seed to get the best start. There are four different methods you can use to prep your site.

Layering

This is a good organic method of site preparation. This method works best on smaller plots where lawn or a garden space is being converted. If you're planting one of our Seed Packets, this is a great method. Below are some directions and general timeline.

- Mow the site and rake or bag off the cut vegetation.
- Lay down newspaper or cardboard. You can wet the newspaper to help it stay in place while completing the process. Some cardboard boxes have a plastic or wax coating. We recommend you don't use cardboard that is coated.
- Cover the cardboard or newspaper with about 3 inches of aged (at least 1 year), double shredded hardwood chips or mulch. The woodchips should have the consistency of soil. You don't want to use fresh woodchips. You can also utilize compost or topsoil, but they may contain weed seeds that will compete with your native plants.
- Allow the aged woodchips or mulch to sit for 48 to 72 hours before sowing the seed.
- Install seed during the spring, dormant or frost period.
- Flip a rake over and lightly work the seed into the woodchips or mulch with the smooth side.

The idea here is to form a layer to keep undesirable plants from growing and competing with the native seeds you've sown. We like using aged woodchips or mulch for this method since they do not have any weed seed in them. This method is best utilized on flat and dry sites.

Solarization

This is another good method of organic site preparation. This method works best on smaller plots where lawn is being converted. This method requires a full growing season to complete. Below are directions and a general timeline.

- Mow the site in the spring (April or early May). Rake or bag off the cut vegetation.
- Dig a trench around the perimeter of the site. Make sure the trench is at least 4 inches deep.
- Roll out clear plastic (at least 4 mil thick). Make sure to remove any large sticks or rocks that could rip the plastic. Overlap the plastic when rolling it out at least 12 inches and lay enough that it can be tucked into the trenches. Black plastic can be used, but it tends to not work as well.
- Fill in the trenches with soil to cover the plastic edges and anchor the plastic. You can also put bricks or rocks on the overlapped areas to help secure them.
- Leave the plastic on from spring until the fall. Mow around the edges of the plastic to keep adjacent plants from producing seed and check the plastic for punctures frequently. If there are any punctures, repair with clear packing tape.
- Remove the plastic later in the fall (October or early November). Rake off any loose and dead vegetation.
- You may need to scuff or rake the surface of the soil to get good seed to soil contact. Do not do any deep tilling.

The idea here is to use high temperatures to kill off existing vegetation and prohibit seeds from germinating in the topsoil. The heat reduces seed viability and helps reduce the seedbank. This method helps, but depending on the seedbank, some perennial plants may persist. Solarization is best utilized on full sun, dry and flat sites. Seeding will occur during the dormant or frost seeding periods.

Mechanical

A good organic alternative to herbicides but works best converting larger lawn or agricultural sites. This method will likely not work well in fallow areas. This method requires a full growing season to complete. Below are directions and a general timeline.

- If the site has tall standing vegetation, mow in early spring (April) and remove the cut material.
- Lightly disk or shallow till in the spring when the site is accessible (May). Please note that you don't want to start this process when the site is too wet. Making ruts or leaving large clumps of wet soil is not desirable.
- Wait about 3 to 5 weeks and repeat the light disk or shallow till. If possible, work perpendicular to the last event.

- Repeat this process as needed for the duration of the growing season. Once you see vegetation emerging on the site, it is time to disk or till.
- You will likely have to disk or till once per month from May to October.
- If there is dense vegetation growth or erosion is a concern, a ReGreen™ cover crop may needed to be planted. This should be seeded prior to October 1st at a rate of 20 pounds per acre. Your selected native seed mix can be sown over the ReGreen™ later in the season.

The idea with mechanical preparation is to constantly disturb the topsoil to encourage plants to grow from the seed bank. Once they grow, they get cut back and eventually you try to exhaust the seed bank. This method is labor intensive and can be quite expensive. Seeding will occur during the dormant or frost seeding periods.

Synthetic or Organic Herbicides

The decision to use an organic or synthetic herbicide should not be taken lightly. If you choose to use herbicides, make sure they are handled carefully and used in accordance with manufacturer's directions. We recommend hiring a professional agricultural herbicide applicator to treat larger areas. These applicators have the proper equipment, are licensed and properly trained. Do not combine mechanical preparation with herbicide preparation.

Using an herbicide is often the most economical and effective method. This method requires a full growing season to complete. Below are directions and a general timeline.

- Apply first herbicide treatment (late April or early May).
    - Wait approximately 2 weeks for vegetation to die off and mow it low to the ground.
    - Bag clippings or rake off cut vegetation.
    - Do not let thatch build up and lay on the ground.
- Apply second herbicide treatment (late June or early July).
    - Wait approximately 2 weeks for vegetation to die off and mow it low to the ground.
    - Bag clippings or rake off the cut vegetation.
- Apply third herbicide treatment (late August).
    - Wait approximately 2 weeks for vegetation to die off and mow it low to the ground.
    - Bag clippings or rake off the cut vegetation.
- Apply a fourth herbicide treatment if necessary (early October).
    - Repeat mowing and vegetation removal if necessary.

The idea here is to control cool and warm season plants that emerge from the seed bank. Keep in mind that the density of the vegetation that needs treated will likely reduce after each event. It is important to keep removing the vegetation after the treatments. The hope is that there will be exposed soil that is ready for seed installation. In some cases, the top layer of soil may need to be scratched or lightly agitated to reduce compaction. **Do not till the area though as it may disturb the seed bank.** Seeding will occur during the dormant or frost seeding periods.

Whichever method you choose to prepare your site, know that you are doing the work to give your native seeds the best possible start. Now comes the fun part, getting your native seeds to soil!

Installation of Native Seed

There are generally three recognized seasons that are utilized in seeding native material in the northern latitudes. They are as follows:

Spring Seeding (Approximately late March)

- **Beginning** – as soon as the soil is workable in the spring. This can vary based on soil type and moisture present.
- **End** – June 15th.
- Germination of annual wildflowers is expected to begin the same season as planted.

Fall or Dormant Seeding (Approximately mid to late November)

- **Beginning** – after surface soil temperatures are below and expected to stay below 50 degrees Fahrenheit.

- **End** – when soil begins freezing and thawing regularly.
- Germination of annual wildflowers is expected to begin the following spring.
- Allows for stratification of seed which is important for most perennial species.

Frost Seeding (Approximately mid-December)

- **Beginning** – when soil freezes and thaws on a consistent basis.
- **Ends** – when spring seeding season begins.
- Seed can be broadcast on top of a light snow – in low wind conditions.
- Germination of annual wildflowers is expected to begin the following spring.

Installation Methods

Broadcast

Broadcast seed application is the most common and economical installation method. You can either broadcast the seed by hand or use a broadcast spreader. Unfortunately, most broadcast seed spreaders are not designed to handle the variety of native seed sizes and densities of native seed. There are ways to get it done, but for smaller areas, it makes more sense to hand broadcast the seed.

Hand Broadcast

- Start by separating the seed into two. An easy way to do this is to use two buckets.
- You may want to add a carrier to the seed such as Rice Hulls, sand or sawdust. Native seed mixes have a much lower application rate than most appliers are familiar with. Adding a seed carrier helps the applicator to not overapply the seed. It also makes the seed easier to see on the soil.

- Sow one bucket and cover the entire area. Work 90 degrees to the first application and cover the entire site with the second bucket.
- Flip a rake over and use the smooth end to lightly rake the seed into the soil. Remember that native seeds should be planted no deeper than ¼ inch.
- Walk or roll over the area to help get good seed to soil contact. Driving over the area with a tractor or ATV works well too.
- Covering the area with straw has pros and cons. It will help reduce bird predation and erosion, but it can also introduce weed seed and can smother the native seeds. A good rule is to use a light coating of weed free straw on sloped areas and to not use straw on flat areas.

Broadcast Spreader

- Mix the seed with a carrier such as Rice Hulls, sand or sawdust. There is no exact ratio, but usually a 2 parts carrier to 1 part seed mix works well. Pour the seed mix and carrier into the spreader.
- Calibrate the broadcast spreader by following manufacturer's instructions. Start with the smallest opening and work your way up. This will help ensure that you don't overapply the seed mix and carrier mixture. **Remember, these spreaders are not typically built for native seed so the calibration and distribution process may be challenging. Always be conservative in your approach as you can go over an area more than once.**
- Broadcast spreaders are usually used for larger areas. With this said, back raking the seed in by hand may be difficult. Dragging a rake or harrow behind an ATV or tractor will help work the seed into the soil.
- Roll the area or drive over the seeded area with an ATV or tractor. In some cases, the seed will get rolled in while it is being installed.

Hydroseeder

An increased amount of companies are working with hydroseeders for lawn installation and want to use them for native seed mix installations. They can work, but with some mindfulness.

- Let the seed mix integrate into the application solution for at least 30 minutes. Native seeds are less dense and smaller than turf seed, so it needs more time to mix. If you don't allow the mix to integrate, you will get strips of plants and other large areas with no growth on the site.
- Often, a tackifier is sprayed over the seeding solution. This tackifier helps reduce erosion. It works well with turf seed that likes to be planted deeper. It can smother out native seeds and shouldn't be used. **The application of a tackifier over the seed solution can bury the native seed too deep and prevent it from germinating.**

Native Seed Drill

A native seed drill is a great tool to install large areas with a native seed mix. These drills are specially equipped to handle the varying densities and sizes of native seeds and distribute them at the appropriate seeding rates. Drills can be set to cut into prepared soil at the appropriate depth and distribute the seed mix at the desired rate. Many drills have a cultipacker as well to roll the seed into the soil. Native seed drills can be rented in Ohio at several county soil, water and conservation districts.

- Make sure your area is suitable for a seed drill. It must be relatively flat and not have large ruts that can hinder the drill. Also, you want the site to be at least a couple acres in size. If not the seed may not flow well into the tubes as there is not enough weight in the box for it to function as designed.

- Inspect the drill to make sure it has been properly cleaned. If it is dirty or has seed left in it from previous usage, clean it before beginning.
- Pour the native seed mix into the appropriate box. Some drills have more than one seed box for different types of seed. In most cases, the box with the agitators in the rear of the drill is the box that will be used. Refer to the owner's manual for specific instructions. Note that if you are doing multiple acres, you may not fit all the seed in the box at the same time. You may need to fill it multiple times.
- Calibrate the drill per the owner's manual. The seed supplier can provide you with the targeted application rate. If you purchase one of our mixes, please contact us for the appropriate drill seeding rate for your mix. Our mixes are sold at a broadcast rate on the website.
- Once calibrated, choose the appropriate time to install the seed. The weather during the targeted installation timeframes can make this challenging. Often, the wet weather can make the site inaccessible with the drill during the fall, winter and spring. The tubes that drop the seed can bind with mud and not allow the seed to distribute in wet conditions. In the winter, sometimes you can access a field in the early morning before it warms during the day. Being mindful of when to use the drill can save you time and resources.
- If the drill has a cultipacker, just drill it and you're done. If not, you may want to roll the site or drive over it with the tractor tires after installation.
- When done, clean and empty out the drill. Often, there is seed left in the box and the tubes that you can bag and keep. Store in a cool, dry location and the left over seed can be used for overseeding areas in the future.

Management of Native Seed Plantings

Management is a key component in the overall success of native seeding projects. No matter how much prep work is done, undesirable plants grow from the seed bank and are introduced from adjacent properties. Over time, native prairies and meadows require far less maintenance than other types of ornamental landscapes, but they are not maintenance free. The first year is especially important in the process as most native seed projects take 2 to 3 years to fully establish.

Please note that not native does not necessarily mean undesirable. Some introduced volunteer species are not aggressive and may be suitable to leave on the site. Other introduced plants are more invasive and can out compete the native and should be controlled. The following is a breakdown of what management will look like in year one, year two and beyond.

Year One

Mowing

One of the best maintenance methods available is mowing (flail mower or brush hog). Mowing accomplishes two main things. First, by keeping the area mowed, generally between 6-8 inches in height, light resources are available to the native seedlings and they do not get shaded out. Second, most of the undesirable annual species will not be able to set seed, minimizing their impact in the future. Most native species planted are perennial in nature. These species are putting down roots for the first season or two and are not harmed by the mowing. As the root systems get below the roots of the undesirable species, they will be able to establish themselves and complete in the future.

Mowing the entire first growing season is a good way to ensure that you don't let annual undesirable weeds take over a site. Mowing should begin when the vegetation reaches 8 -10 inches in height. The area should be mowed to 6 inches. As the season progresses, the finished height of the vegetation can be slightly increased to 8-10 inches. Never remove more than 20% of the height of the vegetation at a time to avoid burying the emerging seedlings. Never mow when dew or water is present on the vegetation. Use a flail mower if possible as it does the best job of chopping up the cut material.

Do not use a turf lawn mower. They cut too low which can favor the undesirable volunteer plants. Do not cut too much of the plant at once and leave large piles of cut vegetation on the site. This will smother out the natives.

Targeted Control

If mowing the first year doesn't fit your abilities or objectives, you can manage in other ways. The ability to identify plant early in their growth cycle allows you to make decisions and control any species that you find undesirable. Targeted herbicide applications and removing individual plants can work as well.

Make sure to use an Ohio Department of Agriculture Certified Commercial Applicator if using herbicide. They can identify what product to use based on the targeted species. Follow all labels and law accordingly.

It is important to mow, remove or kill off undesirable plants before they produce seed and add to the seed bank. Please note that if you are making any herbicide applications that caution should be used. Often, trying to spray one or two plants can lead to over applying which can do more harm than good. Choose areas and products carefully.

If cutting any plants out manually, make sure to remove the cut material from the site. Leaving cut vegetation on the site to rot may smother out native plants.

If you can't identify the plant, let it grow until you can identify it. If you're not sure what the plant is, there are numerous plant identification book and apps available, or you can email us a picture. Over management can be detrimental to native habitat establishment.

Pulling up undesirable plants is not recommended. It is nearly impossible to get all the root. If you do pull, consider over seeding the area with more native seed to help fill the area that was disturbed.

If you have questions about year one management, please contact us early in the season. Often, we get contacted too late in the growing season, and undesirable plant growth becomes unmanageable.

Year Two

Mowing

If you mowed as management for the duration of year one, continue mowing until July 1st. After that, let it grow and evaluate what species and densities you have on the site. At this point, you can continue mowing or perform targeted control. For larger areas, you may continue mowing some areas while others are ready for more targeted control.

For the duration of the second growing season, continue to assess the site and control any species that are undesirable. At this stage, some perennial species will emerge. There are numerous plant identification books and apps that can help you identify the plants.

Targeted Control

Follow the processes identified in year one.

Year Three and Beyond

Assess the site in late spring and put together your management plan.

Continue annual targeted applications as appropriate. Please note at this point hopefully the site requires less attention for management and is more sustainable (and beautiful)! Typically, visiting a site one or two times per month from May until September is needed. Targeting individual undesirable plant or small clumps is common at this point.

Prescribed burning is an option. Fire is a good tool to use on established sites because most native species are fire tolerant and undesirable and introduced plants are not. By year three, there is likely enough fuel to burn the site. Prescribed burning can be done in the spring or fall depending on if you want to encourage grass or forb (wildflower) growth. **Contact an ODNR or state prescribed burn manager to develop a plan, obtain the necessary permits and execute the burn. DO NOT ATTEMPT TO BURN ON YOUR OWN. Extreme care must be taken when using fire as a tool. Please consult with your local fire chief, your state's Division of Forestry and the jurisdictional EPA body in your area prior to burning. Some local codes prohibit burning of any kind. Always work with an experienced burn leader and all appropriate safety equipment.** Burning can be done annually or on a 2-to-3-year rotational basis.

It is important to note that while fire is a great tool, it is not necessary to have a successful meadow or prairie. Some situations don't allow for fire. Some years, the weather doesn't line up to make it happen. For those years, you can perform an annual or rotational 2-to-3-year mowing event.

Use a flail mower or brush hog to cut the dormant vegetation down in stages if possible. Cutting 6 inches or so down at once is a good way to not leave piles of debris. If cutting all at once, you will likely need to run over the cut material to chop it up or rake it off the site. Do not leave dead thatch laid out or in piles on the site.

Unlike the mowing events that take place in year one or two, this mowing event is done once and is mostly for cleaning up thatch. Removing thatch build up allows light and resources to reach the soil and encourages native plants to emerge. This mow event can take place in the fall, winter or spring. We encourage a late winter mowing if possible before nesting birds make a home in the plants. Dormant native plants are great habitat for wildlife over the colder months.

Keep in mind that this mowing is helpful but not likely crucial to the overall health of the ecosystem. It is better to not mow than to try and mow if the site conditions are not met favorable. Mowing when it is too wet can be detrimental. The wet vegetation will not chop up and leaving tire ruts on the site creates disturbances that favor undesirable or invasive plants.

Over time, some species may establish better than others. This can create lower species diversity in your planting. Winter over seeding of species can enhance your planting and help increase diversity. After mowing or burning are great times to over seed as there is open soil and you can get good seed to soil contact.

OPN Seed can provide seed mix matching, custom seed mix design and remote consultations. You can read more about the services we offer here. If you have any questions about this guide, please contact us. We're happy to help.