PLANTING INSTRUCTIONS

Prairie Planting

Seeding Guide

- Site Preparation Methods
- Final Seed and Plant Bed Preparation
- Planting Your Prairie Seed

STEP 1 2 3

Brought to you By:

NATURE'S OWN
You have purchased the highest quality native wildflower and grass seed available. Please follow these instructions carefully, and you will be rewarded with a beautiful prairie that will return year after year!

Most all of our seed mixes contain legumes, which have been mixed with wildflower seed. Legumes are members of the pea family, and add nitrogen to the soil. Your legume seeds have been pre-inoculated with Rhizobium Innoculum. This is a bacterium that forms a symbiotic relationship with the roots of the leguminous plants giving them the capacity to take nitrogen out of the air and incorporate it into the soil.

SEEDING A PRAIRIE PLANTING

A prairie planting is a long-term investment in your landscape, which requires careful planning. Since a variety of site conditions may be encountered when seeding an area, it is not possible to write a standard “recipe” for site preparations and planting procedures.

However, we have developed specific guidelines for success, based upon many years of experience.

If you have any questions, please call us at 800-480-7661 M-F 7a.m. – 5 p.m., or please email us at info@whitetailhabitat.com.

We are happy to help you ensure the success of your prairie planting!
To prepare your site for planting, you must first remove the existing vegetation, which may consist of perennial weeds, annual weeds, or both. Existing weeds will compete with prairie seeds for nutrients, moisture and sunlight. Although it is nearly impossible to remove all annual weed seeds from the sandbank stored in the soil, it is crucial to kill and/or remove all perennial weeds and rhizomes before planting. Perennial weeds such as Quackgrass, Bromegrass, Canada Thistle, Canada Goldenrod, and Red Clover can inhibit the growth and development of your prairie.

Eliminating all perennial weeds prior to seeding is ESSENTIAL to the success of your prairie. Site preparation options may vary according to the vegetation type that you are converting to a prairie planting and include the methods which are outlined on the proceeding pages.

1. Smothering (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. (We do not recommend covering newspapers with topsoil, as the soil may contain numerous weeds).
   - Leave in place for a full growing season and remove in the fall or the following spring.
   - Prepare bed

2. Sod Cutting (Organic)
   - Remove the top two to three inches of grass and soil with roots using a sod cutter.
   - Prepare bed
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3. Cultivating (Organic)

- Cultivate with the rototiller, cultivator or similar tool. Do this two to three times at one week intervals to kill the lawn. Remove clumps of sod & thatch to create a smooth seed bed.

- If perennial weeds are present in the lawn, cultivate for a full growing season, at intervals of every two to three weeks. This should kill both the lawn and the perennial weeds.

- Prepare seed bed after all weeds have been killed.

4. Herbiciding

- Apply a Glysophate herbicide (such as Roundup, Kleenup etc.) when the lawn is actively growing (in fall or spring). Weedy lawns may need further applications of herbicide.

- When Grass has turned brown, turn the soil under to prepare for seeding. Remove clumps of sod and thatch to create a smooth seed bed.
Fields that have been abandoned and allowed to grow up into grasses and weeds require at least one full year of proper site preparation. Completing two years of weed control is even better, due to the presence of established perennial weeds and weed seeds in the soil. Please do not rush your site preparation if you are planting an old field. Kill all the weeds first!

1. Herbiciding

- Mow, and rake or burn the existing vegetation to the ground in late fall or early spring. Apply a Glycophate herbicide (such as roundup, Kleenup etc.) three times throughout the growing season at 6 – 8 week intervals (mid-spring, mid-summer, early fall), when plants are green and actively growing.

- If perennial weeds are still present on the site after a full ear of herbiciding, do not seed. Leave the soil undisturbed over winter, and apply one more herbicide treatment in late spring of the following year to kill nay remaining weeds. (If in doubt that this additional application is sufficient, wait, spray for a second year at 6 – 8 week intervals and seed in the fall.)

- When all the vegetation is dead, work the ground to create a prepared seed bed.

2. Cultivating

- Mow and rake, or burn off the existing vegetation to the ground in late fall or early spring.

- Cultivate to a depth of four to five inches every two to three weeks from spring through fall.

- Before planting, make sure all the existing weeds have been killed. This procedure may require two consecutive years of cultivating to kill pernicious, noxious weeds.

- Plant in fall or the following spring into a prepared bed.
Corn and grain fields can easily be converted to prairie immediately after harvest or the following spring. Before planting into corn fields, test soil for persistent agri-chemicals such as Atrazine. If present, Atrazine can kill germinating prairie wildflower seedlings!

To determine if it is present in your soil, perform this simple test: Grow ten oat seeds in a pot with the cornfield soil. In another pot, grow ten oat seeds in potting soil, or unaffected garden soil (this is your experimental “control”). When the oats reach a height of about 4 inches, those growing in Atrazine-laden soil will stop growing and turn yellow.

Oats growing in untreated soil will continue to grow, without yellowing.

Compare the oats growing in the cornfield soil with those in untreated “control” soil to make sure that any positive results for Atrazine are not shared by the oats in the untreated soil.

If Atrazine is present, we recommend allowing the site to sit for 1-2 years before you plant your prairie.

If unsure of the site’s herbicide history, contact the farmer who owned the land; they must keep records of Atrazine use.
• **Spring:** Spray once in mid to late spring, this will kill annual weeds. Wait 10 days until vegetation is brown and plant in prepared seedbed. If problem perennial weeds such as Quackgrass, Bromegrass, Canada Thistle, and Clover are present, treat the field with Glysophate three times throughout the one full growing season, at 6 – 8 week intervals (same as Old Fields in Section B above)

• **Fall:** After crop is harvested, if weedy vegetation is present and is still actively growing, spray with Glysophate, wait 10 days and plant in prepared seedbed. If the crop is removed late in the season, wait until spring to spray the field when Quackgrass, Bromegrass, Canada Thistle, and Clover are present, treat with Glysophate three times throughout one full growing season, at six to eight week intervals.

• Mow and rake, or burn off the existing vegetation to the ground in late fall or early spring.

• Cultivate to a depth of four to five inches every two to three weeks from spring through fall.

• Before planting, make sure all the existing weeds have been killed.

• Plant in fall or the following spring into a prepared bed.
If planting in fall, the seed can be scattered into the dead vegetation without tilling so long as EXPOSED soil is visible below the vegetation. The seed will work its way down into the soil over winter through freeze and thaw cycles, and germinate the following spring. This method is a “dormant seeding”. Fall dormant seeding typically results in higher germination of wildflower seeds, but produce lower germination of warm season prairie grasses. Spring seeding result in higher germination of warm season prairie grasses and somewhat lower germination of certain wildflowers.

Prairies can be planted in spring using a no till Drill or Slit Seeder (TYE, Truaz, etc). This equipment inserts the seed ¼ to ½ inches into the soil and is suitable for planting large sites.
Achieving good seed to soil contact requires a well-tilled finely graded soil surface prior to planting. If seed by hand broadcasting rake or drag the soil with a rake or drag (a length of chain link fence attached to a garden tractor or ATV works well to smooth soil which has been freshly tilled). If seeding sites on half acre or larger, seeding mechanically using a Brillion drop seeder or similar implement is ideal. A Brillion’s heavy cast iron packing wheels ensure firm seed to soil contact.

No Till Drills or Slit Seeders (Tye, Truax, and John Deere etc) is best suited for large sites. This equipment requires a smooth level soil surface, but little or not tilling. Tilling will only expose more weed seeds from the seed bank in the soil below, and is not recommended when using no-till drills and slit seeders.

Organic Process: Wait for a good spring rain after the site is fine-graded. This will stimulate weed seeds in the soil to germinate. Five to seven days after the rain, till the soil very lightly, no more than one inch in depth (a field drag works admirably for this job). This will kill the newly germinated weeds before they emerge from the ground. We recommend dragging or tilling in mid-morning of a warm, sunny day, so that weed seedlings will be killed by the heat of the sun. Plant immediately.

Final Pre-planting Tip: If planting in late spring or early summer, you can reduce weed densities by applying a Glysophate (Round-up, Kleenup etc) to the site when newly sprouted weeds are two to three inches tall. Wait 10 days after spraying, till the soil very lightly, less than one inch if possible (tilling deeper will only bring up more weed seeds). Smooth planting surface. Plant Immediately.
**Advantages**

- Seed overwinters as it would in nature and comes up in spring on its own schedule when conditions are right. This breaks most seed dormancies naturally over winter.

- In general, flower species exhibit increased spring germination with fall seeding.

- Recommended for drouthy, sandy soils because seed germinates earlier in the season, when moisture levels are optimal, and before summer heat.

- Recommended for clay and wet soils. Clay and wet soils are easier to work in the fall than in spring, and seeds will germinate earlier in the season. Clay soils often remain wet well into spring, and by the time they can safely be worked, the heat and drought of summer are often right around the corner, which can reduce the success of seedlingsurvival. Fall seeding on clay and wet soils encourages earlier germination and better root development prior to the onset of summer.

- Fall seedings do not require watering, as the seeding is dormant.

**Disadvantages**

- Warm season grass seed typically exhibits reduced germination

- There is no opportunity for early spring weed control by cultivation or herbiciding.

- Be careful on erosion prone sites. Plant erosion prone sites paired with a nurse crop of annual rye or oats to help hold the soil over the fall and winter. Annual Rye is planted at a rate of 15 pounds per acre in fall (and 5 pounds per acre in spring).
**When to Plant?**

**EARLY SPRING**

**March-April.**

**Dates will vary by location**

**Advantages**
- In general, results in better flower germination than planting in late spring.
- Watering is generally not as critical, as spring rains fulfill this need.
- Warm season grass seed generally has better germination than in a fall.
- Best option for sandy soils if unable to plan in the fall.

**Disadvantages**
- Limited opportunities for early cool season weed control.
- Not recommended for heavy soils, as it is difficult to work these soils in the spring.

**LATE SPRING**

**May-June.**

**Dates will vary by location**

**Advantages**
- More time for good soil preparation-particularly important on heavy soils.
- More time for spring weed control prior to seeding.
- Optimal time for ideal germination of warm season grasses.

**Disadvantages**
- Increased chance for low moisture conditions or the onset of drought later in season.
- Reduced germination of some flower species.
Hand Broadcasting Seed

- Start with a freshly tilled seed bed free of rocks or soil clumps than two inches in diameter. If seeding in fall, please see the special fall planting tip below.

- Mix all seed (including annual rye or oat nurse crop) with carrier. This carrier can be sawdust, peat moss, clean sand (playground or builders sand), or vermiculite, (it does not matter what carrier you use; whatever is most readily available to you). You will need to use two bushels baskets or 2.5 cubic feet of any one of these “carriers” per 1,000 square feet of area you are covering with seed. For one acre this equals filling the bed of a standard pick-up truck with the carrier, (which holds 72 cubic feet). Please do not skip this step, or there will be a risk of running out of seed!

- Dampen the seed/carrier mixture with water, just until it is slightly damp to touch. The water is necessary so the light prairie seed adheres to the carrier which aids in even distribution of the seed.

- After mixing your seed into the light carrier, divide this 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).

- Hand broadcast the second half of the seed over the site; walking perpendicular to the direction you seeded the first half. This “cross pattern” seeding ensures even seed distribution.

- Rake or drag the area lightly, covering the broadcasted seed/carrier with about ¼ to ½ inch of soil. (Do not bring topsoil to achieve this, as this will potentially introduce more weed seed on your site.)

- Firm the seeded area by rolling the site with a hand roller, cultipacker, tractor or vehicle. Prairie seed requires firm seed to soil contact for good germination.
Hand Broadcasting Seed (continued)

- Mulch the planting area with approximately 1 inch of weed free straw or marsh hay (do not use field hay as it contains weeds!). Mulch can be laid by hand or blown on the site mechanically. The mulch will help control erosion on slopes and help to retain soil moisture during the germination period. If working on gradual slopes or erosion prone sites, cover the mulch with a photo-degradable plastic or natural mesh with one half inch openings to allow for unimpeded wildflower seedling development. Secure the mesh with landscape staples placed at one to two foot intervals.

- Watering: (Optional; prairies will germinate without additional watering, hey will perhaps germinate more slowly, but watering is optional if cannot do this).

- If watering is possible, water spring and summer seedings regularly during the first 6-8 weeks after planting for higher germination and seedling survival. Water just enough to keep the soil moist, every other day for 15 minutes to half an hour. Over watering can drown seedlings, especially on heavy clay soils. Water in early morning, as watering during the day can be ineffective and wasteful. After eight weeks, water only if it does not rain for one week. Afternoon and evening water encourages seedling loss by fungal attack.

Special Fall Planting Tip: This technique works only on sites that had all weed eliminated by smothering or herbicide use (Round up, Kleenup etc). If the result of this process reveals dead vegetation which is very sparse with a good deal of mineral soil present below the dead vegetation, you can seed right into this vegetation. First cut down any vegetation with a lawnmower or rake it off, the cut vegetation may impede seed to soil contact. The seed will work its way down into the soil through the freeze and thaw process throughout winter. This method can only be accomplished in the fall. This method will not work in the spring as the seed will not be worked into the soil without ground freeze and thaw. It is important to roll the seeded area so seed is impacted into the soil.
Mechanical Planting of Prairie Seed

- On areas greater than one acre, it is more efficient to plant using a broadcast or a no-till planter. The broadcast planter spreads the seed over the soil, whereas the no-till seeders plant the seeds in rows by opening slits in the soil.

The broadcast seeder we recommend is the Brillion double box agriculture model, typically used to seed alfalfa and grass mixture, but equipped with native grass seeder, and John Deere seeders. On gradual slopes, mulching and erosion fabric may be necessary to prevent the seed from washing prior to its establishment.

For hydromulching only use cellulose-based mulch and do not use a tackifier. Although grasses are able to penetrate through a tackifier, the wildflowers typically cannot.
Hydroseeding of Prairie Seed - Straw Mulch

- Hydraulically applied straw shall be comprised from turf grass straw that has been lightly processed into a long-fibered, flowable straw mulch that mixes readily into uniform slurry. Combined with a special binding material, this material makes porous yet strong and seed friendly mulch when correctly applied to the soil surface. A specified application of 2000 lbs per acre of hydraulically applied straw per acre.

- On steeper incline areas a specified rate of 4000 lbs per acre is recommend with a two-step application method being introduced. The two-step method of application is as follows: when seeding, apply 2,000 lbs hydraulically applied straw, seed, fertilizer and other ingredients in the first application and then apply a second treatment of hydraulically applied straw only. For flat pads mulching rates in the range of 2,500 to 3,000 lbs per acre can provide good coverage from a single pass.

- The most successful Hydraulic 2-Step application method has been to throttle back the machine and apply the material with a fan nozzle in a sweeping motion. Other methods that softly “lay in” the product have also been favored. Hydraulically applied straw comes packaged in 50 lb straw bales with a pre-blended binder. The material breaks up easily and may be mixed with water in ratios of 75 lbs of mulch per 100 gallons of water or more. Using hydraulically applied straw in a 3,000 gal hydroseeder the applicator may apply up to 4,500 lb per acre in two loads resulting in 100% soil coverage.

- Mulch shall be applied uniformly in continuous blanket, using 1 - 2 tons per acre. Mulch shall be spread by the mechanical method of hydraulically hydro mulching. Mulching shall be started at the windward side of relatively flat areas, or at the upper right of a steep slope, and continued uniformly until the area is covered. The mulch shall not be bunched.

For more information on Hydraulically applied straw mulch, please contact HydroStraw®:
3676 W 9000 N Rd. Manteno, IL 60950 • Phone 1: 1.800.545.1755
Phone 2: 1.815.468.3610 • Fax: 1.815.468.7450 • info@hydrostraw.com
www.hydrostraw.com
Year One

Weed control during the first growing season is essential. The perennial prairie seedlings grow slowly, and are easily out-competed by the faster growing weeds that will inevitably germinate.

- Mow your prairie about once a month during the first growing season. The actual mowing frequency will depend on rainfall in any given year, actual weed density and height.

- Mow the entire planting when weeds reach the height of 12 inches. As a general rule of thumb, anything that grows taller than 8 inches in the first year is most likely a weed. Taller weeds shade out prairie seedlings. Mowing the vegetation as 6 inches will cut back taller weeds, while leaving the shorter prairie 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 weeds as they are cut, instead of laying the cut weeds on top of the prairie seedlings. If a flail mower is unavailable, a rotary mower or sickle bar mower may be used.

- In the first season prairie seedlings rarely grow taller than 4-6 inches, with the possible exception of Black Eyed Susan. As difficult as it is, we recommend cutting all vegetation, including the tops of the Black Eyed Susans. Cutting will not kill the Black Eyed Susans.

- Be sure to mow weeds before weeds set seed, to prevent further infestation.

- Although tempting, we do not recommend pulling weeds, as this will disturb or destroy the developing prairie seedlings.

- At the end of the first growing season, leave the dead vegetation and or stubble standing, this helps to catch winter snows which helps insulate the soil seedlings and reduce winter frost heaving.
Year Two

During the spring of the second year, mow the standing residual vegetation as close to the ground as possible in mid spring, and rake off any cuttings. Mowing in mid spring helps to set back non-native cool season weeds and grasses such as Quackgrass, Bluegrass, and Bromegrass etc. Timing is very important when mowing your prairie. The optimal date for mowing can vary as much as a month in any given year, due to the differences in weather. However we can use plants as our calendar to ensure optimal timing. The best time to mow most prairies is when the buds of the Sugar Maple tree begin to break open in the spring. This usually will occur 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.

• Removing the vegetation and raking the vegetation encourages soil warming, which trigger the warm season prairie plants to break dormancy.

• If Biennial weeds such as Sweet Clover, Burdock, and Wild Parsnip etc appear or are a problem, mow again at approximately 12 inches when weeds are in full flower. Make sure to mow the weeds before they make seed! Expect this second mowing for controlling biennial weeds to occur in June, depending on your location.

• Do not mow after new plant growth has reached one foot or taller, as this could damage your prairie plants.
Year Three & Beyond

Burning Your Prairie (Optional)
Beginning in the spring of the third year, your prairie can be burned for the first time to maintain its diversity and vigor. Burning in mid-spring helps to set back non-native cool season weeds and grasses such as Quackgrass, bluegrass, bromegrass etc. By waiting until the undesirable plants have initiated spring growth before burning, the fire will destroy their new growth and set them back, favoring the warm season prairie plants, most of which are dormant under the soil.

• Burning removes plant litter from the previous year’s growth and exposes the soil surface to the warming rays of the sun. Burning encourages earlier soil warming and typically increases growth, flowering and seed production of the native flowers and grasses.

• Timing is very important when burning your prairie. As with mowing the optimal date for burning can vary as much as a month in any given year, due to the differences in weather. However we can use plants as our calendar to ensure optimal timing. The best time to burn prairies is when the buds of the Sugar maple tree begin to break open in spring. This usually will occur sometime between April 1 – 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.

• If you cannot or do not wish to burn we recommend mowing all vegetation to the ground at the same timing as described above).

• Dry prairies (sandy soil) should be burned in the late fall after most of the native plants have gone dormant, but the non native grasses are still active. Burning in very early spring also can be done successfully on dry prairies.

• It is recommended that you divide your prairie into “management units”. Burn or mow one half every other year, alternation from year to year so that each half is burned once every two years. This helps prevent invasions by woody plants as well as gaining a foothold in your prairie. Burning every year is generally not recommended as it tends to increase the dominance of warm season prairie grasses and certain prairie flowers.

• Leaving unburned sections of your prairie preserves overwintering butterfly, moth and other invertebrate pupae and eggs so they can re-populate the ecosystem that year. These species would otherwise be destroyed by burning.

• Do not burn or mow after new plant growth has reached one foot or taller, as this could damage your prairie plants!

• Many ground nesting birds also build their nests in late spring and burning or mowing at this time could destroy some nests. Mid spring timing of the burning or mowing maintenance leaves sufficient time for birds to re-nest and successfully raise their young.
Year Three & Beyond (continued)

• Burning or mowing every other year helps to create conditions from year to year, maintaining maximum plant and animal diversity.

Prairie 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 year after the initial planting. Most perennial prairie flowers and grasses will not begin to flower until their third or fourth full growing season.
Please follow these directions carefully, and give your prairie time to develop. Although your prairie seeding 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 blooming and can crowd out some weeds.

Please be vigilant in monitoring your prairie for weeds and control them as we recommend.

Perennial prairie plants devote most of their efforts in the first few years of 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 their “root bank accounts” to sustain them in future years.

The deep roots of the prairie flowers and grasses give them long-term staying power that allows them to squeeze annual and biennial weeds, and return year after year for decades!
For more information and consultation please contact our office with the contact information listed below. We hope this helps you in your prairie planting needs!

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