



## NATIVE GRASSES & WILDFLOWERS

### General Seeding Guidance

**Native Prairies Seed Mixes** -The seed packet you have either consists of a diverse mix of native prairie grasses or a diverse mixture of native prairie wildflowers (also called 'forbs') or both. The native prairies of our area typically consist of around 75% grasses and 25% wildflowers. Native grasses fill in open soil areas between wildflowers and help prevent invasive plants, like Canada Thistle, from getting into the planting area and taking over.

Diverse plantings are more resilient to drought, disease and other stressors than low diversity plantings. The inclusion of a diverse mixture of native perennial plants is also greatly beneficial to wildlife for habitat (food & cover). In addition to the importance of planting a large diversity of species, we recommend using local seed sources.

**Proper soil preparation is the single most important factor in the success of your prairie planting.** For seeds to germinate, it is essential that the prairie seeds press firmly into the soil (known as good seed-to-soil contact). If seed does not 'firmly' contact soil, it will have great difficulty germinating and will most likely dry out and die. Proper soil preparation should also help reduce future weeding needs.

**Phased planting** is a method that can make it easier to manage a new planting. By starting with grasses only it is easier to prevent the establishment of weeds. Simply eliminate everything that isn't a grass and mow often. It is important to learn to identify a handful of invasive grasses that need to be eliminated as well. In a couple years, after the grasses are well established, you can inter-seed or inter-plant wildflowers.

Each packet has a mixture of cool-season and warm-season native perennials. Cool-season perennials germinate and begin growth in cool soil temperatures while warm-season perennials need warmer soils to germinate. Perennials grow from the same roots for several years while annuals live only one year, growing from seed each year.

**Cover/nurse crops** – Cover crops are used to establish a quick, temporary cover to reduce erosion and competition from weeds, while the slower germinating native grasses and wildflowers take root. Oats seed is included in the seed mix as the temporary cover crop and will only persist for a year or two.

**Fertilizer** – Most soils have enough nutrients for the native plants so fertilizers are not usually needed. Adding unneeded fertilizer may lead to excessive weed growth. If you are concerned about soil fertility, have a sample tested.

## **SITE PREPARATION METHODS:**

To prepare your site for seeding, typically you must first remove the existing vegetation. **Remember that you need to ensure that the seed you put down can come into contact with the soil, so that it can germinate.**

Existing “weeds” will compete with prairie plant seedlings for moisture, nutrients and light. Although you will never be able to remove all annual weed seeds that are in your soils, it is critical to kill and/or remove perennial weeds, and rhizomes, before seeding your site. Perennial weeds such as Quackgrass, Bromegrass, Canada Thistle, Spotted Knapweed, Red Clover, Sweet Clovers, Reed Canarygrass, etc. will inhibit the growth and development of your prairie. Eliminating all perennial weeds prior to seeding is essential to the success of your prairie seeding project.

**Site preparation options vary according to the vegetation type that you are converting to a prairie planting (3 scenarios are given):**

### **Lawns**

#### **Sod-Cutting:**

- 1) Cut out the top 2-3” of sod using a sod-cutter (they can be rented at local rental centers).
- 2) After sod removal, loosen the shallow soil surface to a 1/2” depth.
- 3) Ready to apply seed.

#### **Cultivating the Sod:**

- 1) Till the area to be seeded to a depth of 4-5”. You will need to do this two or three times, at one week intervals, to kill the lawn.
- 2) Remove clumps of sod and thatch.  
Note: if perennial weeds are present in this area, cultivate for a full growing season, at two to three week intervals. This should kill the perennial weeds.
- 3) Rake or drag to ‘firm’ the soil and create a smooth seed bed.
- 4) Ready to apply seed.

#### **Herbiciding the Sod:**

- 1) Apply a glyphosate-based herbicide (like Roundup, Killz-All, etc.) to the grass when the lawn is actively growing. You may need to apply herbicide two times, at a two week interval, if you missed anything in the first spraying.
- 2) When the grass has turned brown, till the dead sod into the soil to prepare for seeding.
- 3) Remove clumps of sod and thatch.
- 4) Rake or drag to ‘firm’ the soil and create a smooth seed bed.
- 5) Ready to apply seed.

## **Old Fields**

Sites that have perennial “weeds” present may require a few months or a full season of proper site preparation before seeding. Do not rush site preparation in old fields—Kill all the weeds first!

### **Cultivating the ‘Old Field’ Undesirable Vegetation:**

- 1) Mow and rake off (or burn) the existing vegetation in the area to be seeded. Burning will require a burn permit and a lot of caution and know-how
- 2) Till the area to a depth of 4-5”, every two to three weeks, from spring through fall.
- 3) If perennial “weeds” are not killed through repeated tilling, you may have to apply glyphosate-based herbicide (ie. Roundup, etc.) to remaining plants.
- 4) Rake or drag to ‘firm’ the soil and create a smooth seed bed.
- 5) Ready to apply seed.

### **Herbiciding the ‘Old Field’ Undesirable Vegetation:**

- 1) Mow (at 1-3” height) and rake off (or burn) the existing vegetation in the area to be seeded. Burning will require a burn permit and a lot of caution and know-how.
- 2) Apply a glyphosate-based herbicide (like Roundup, Killz-All, etc.) to the area, when the plants are actively growing, at least three times throughout the growing season (late spring, mid-summer, early fall) to make sure you kill the cool-season and warm-season perennial “weeds”.  
Note: If perennial weeds are still present and alive after a full year of herbiciding, do not seed. Leave the soil undisturbed over winter, and apply one more herbicide treatment in late spring.
- 3) When the existing vegetation is dead, burn it if possible, otherwise mow it as short as possible with the goal being to create exposed soil areas. Tilling could cause buried weed seed to germinate.
- 4) Rake or drag to ‘firm’ the soil and create a smooth seed bed.
- 5) Ready to apply seed.

## **Garden Beds**

If you have bare-soil areas within garden beds, your site should be ready for seeding, although you may want to rake and ‘firm’ the soil to create a smooth seed bed.

**REMEMBER: Proper soil preparation is the single most important factor in the success of your prairie planting.** Your patience and diligence will be rewarded.

Note: There are other site preparation methods, like smothering, but they are not covered in this guide.

## **SEEDING METHODS:**

'Broadcast' seeding is the only type of seeding discussed in this guide book. Broadcast seeding is the scattering of seed over the soil surface. **It is essential that seeds come into firm contact with soil (good seed-to-soil contact)**. If seed does not firmly contact soil, it will have great difficulty germinating and will most likely dry out and die.

**Season of Planting**—The season of planting for native grass and wildflower seed mixtures runs from spring to early summer and from early fall until snow cover. Snow seeding may also be an option, but is not covered in this guide. **DO NOT SEED DURING HOT SUMMER MONTHS.**

Note: In storing your seed, before you're ready to seed, keep the seed in an airtight container in a cool (70 deg) and dry place.

### **Hand-Broadcasting**

Divide the packet(s) of seed into halves (try to get an even distribution of seed sizes).

Grasses typically have larger seeds than wildflowers. Grass seed, and other large seeds (like legumes), should be covered lightly with soil, or leaf-compost, and firmly packed in. Small wildflower seeds should be dropped on the surface and firmly packed in.

Broadcast the first half of the seed over the entire area while walking in one direction (e.g. north-south), trying to get fairly even seed coverage.

Broadcast the second half walking perpendicular (e.g. east-west) to your first pass. This will ensure even coverage and you won't run out of seed before you get the whole area seeded.

You can practice flinging seed, with your hand, by practicing with some sand. You can develop a method that flings out a fairly even distribution. You can also work with the wind direction in choosing what will work best for you to get a fairly even coverage.

Adding a filler material to the seed mix may make seeding more even. Moistened compost, sawdust, sand or coarse-grade vermiculite work well.

If you are seeding a large area you may want to divide the area up into smaller sections, use flags, hose, etc. to mark out these smaller areas.

You might want to mix the seed into a bucket, pail, etc.,. Make sure to try to grab a mixture of seed sizes, with each handful you fling.

## **Raking**

The seeded area should be lightly raked following seeding to ensure good seed to soil contact. Some seed will still be on the surface.

## **Packing**

The seeded area should be firmly packed following seeding and light raking. Walk over the area, drag a board over it, or any method that works well for you, but doesn't overly compact the soil. After proper packing, the seedbed should barely show footprints when walked on. ACD has a roller-packer that is available for rent-it can be pulled behind a typical rinding lawn-mower.

## **Temporary Erosion-Control**

It is a good idea to protect a new seeding by covering it with light mulch, like weed-free straw or hay or other mulch material that will let light through, but will also retain moisture and hold the seed in place for successful germination, protecting the seed, the soil, and your investment.

On relatively flat areas, a loose straw mulch (or similar) can be used. If your seeding project is in a windy area, you may have to temporarily anchor down the loose mulch, so the mulch and seed doesn't blow away. You can purchase a "photo-degradable" netting with soil staples (there are also other options).

Mulching, for promoting seed germination, should cover 90% of the exposed soil surface. This generally requires about 100 lbs. of straw mulch per 1,000 square feet, which is about three square straw bales.

NOTE: Mulches derived from pasture *hay* containing un-desirable "weed" seed could easily contaminate and ruin your native grass and forb planting. Also, remember that *Straw* is not the same thing as *Hay*.

On "moderate" slopes, it is suggested that you use an erosion control blanket of some kind. An erosion-control blanket is a blanket of mulch (straw, wood-fiber, etc.) that is held together by netting (photo-or-biodegradable). The blankets are shipped in a roll (usually around 6' wide x 1' diameter) and usually cover around 600 square feet. One blanket (roll) costs between \$30-\$100, depending on the type of "mulch" that it is mainly composed of. On "steeper" slopes it is strongly suggested that you use erosion-control blankets of some kind.

Erosion-control for very steep slopes and/or water-flow channels will often require more specialized treatment that are not covered in this guide.

Please contact our staff for additional information.

## **MAINTENANCE:**

Native perennial wildflowers and grasses tend to grow slowly and invasive weeds such as thistles, foxtail, crabgrass, red clover, etc., may become a problem the first few years. By following a simple maintenance routine you can help ensure the success of your planting, by keeping out these invaders.

A good rule of thumb is "DON'T LET ANYTHING PRODUCE SEEDS FOR TWO YEARS."

### **1<sup>st</sup> Growing Season**

Weed control in Year 1 is essential. Many of the prairie seeds will grow slowly, and can be out-competed and crowded out by faster-growing weeds, that may pop up. Moist and wet sites, in particular, are more prone to weed competition.

Many of the invasive weeds that may just show up are annuals, like Ragweed or biennials like Burdock. Invasive annuals grow quickly, then flower and produce more seeds that drop into the soil. Invasive biennials only live two years, but produce many seeds from flowering. Invasive perennials, like Canada Thistle, which can come back year after year from the same roots, may need to be hand pulled or very carefully spot-sprayed with an herbicide. You want to prevent the invasive plants from making more seeds. You will also want to prevent the invasive perennials from spreading out by their roots.

In the first year, mow the growing plants to a height of *6 inches* during the *third week of June*, the *second week in July* and the *first week of August*. This mowing schedule should help knock back both the cool-season and warm season non-desirable weedy annuals and biennials. Also, spot spray or hand pull thistles and other problem perennials.

For help in learning how to identify the plants in your seeded area (to determine whether a plant is a friend or foe) we suggest finding a good plant identification book. We recommend identification books that show how to identify plants when they are very young and also when mature. If you are doing a phased planting, with only grasses, it will be much easier for you.

In the seed packets from ACD, there is a cover-crop of oats included in the seed mixes. The oats should be the first plant to germinate (they should start germinating in about one week, with adequate moisture). The oats will look like a grass. The presence of this 'cover crop' helps the germination and growth of slower-growing native plants below. The oats crop should only survive until the first winter. When mowing, don't worry when you mow off the top of the oats.

If you have seeded only wildflowers for a flower garden, you will not want to mow them down during the summer. You will still have to deal with invasive plants that may show up through (annual, biennials and perennial).

## **2nd Growing Season**

In the spring of the second year, mow the standing vegetation to the ground and rake off the cuttings. You may need to mow again, at a 10-12" height in mid-June. Evaluate the plants growing to determine if you need another mowing in year 2.

## **Year 3 / Long-term maintenance**

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 to late spring helps set back non-native cool-season weeds. Burning encourages soil warm-up, which encourages the growth of the native warm-season plants.

If burning is not possible, then a short mowing will be the next best thing. Rake off and remove the loose thatch.

Burning or mowing every other year helps create conditions to maintain maximum plant and animal diversity.

## **COMMON INVASIVE PLANTS:**

The following is a list of common invasive species that might pop up in your prairie plantings.

You should familiarize yourself with as many as possible. Those at the bottom of the list (next page) tend to be a larger problem and special attention should be given to them.

### **Common invaders in large numbers persisting under disturbance:**

These should be controlled through mowing. Often found at the beginning of restorations but greatly reduced in numbers as the planting matures.

<i>Abutilon theophrasti</i>	-----	Velvetleaf
<i>Amaranthus retroflexus</i>	-----	Pigweed
<i>Ambrosia artemesifolia</i>	-----	Common Ragweed
<i>Ambrosia trifida</i>	-----	Giant Ragweed
<i>Berteroa incana</i>	-----	Hoary Alyssum
<i>Brassica nigra</i>	-----	Black Mustard
<i>Capsella bursa patoris</i>		Shepard's Purse
<i>Chenopodium album</i>		Lambsquarters
<i>Conyza Canadensis</i>		Horseweed
<i>Euphorbia maculate</i>		Spotted Spurge
<i>Lepidium virginicum</i>		Common Peppergrass
<i>Rumex crispus</i>		Curly Dock
<i>Tragopogon major</i>		Goatsbeard
<i>Alopecurus carolinianus</i>		Annual Foxtail
<i>Digitaria sanguinalis</i>		Hairy Crabgrass
<i>Panicum capillare</i>		Witchgrass

**COMMON INVASIVE PLANTS (continued):**

**Persistent invaders, sometimes unfavorably competitive:**

You may be able to control them with mowing and burning but watch them carefully. They may require spot spraying with herbicide or hand-pulling.

<i>Agrostis alba</i>	-----	Redtop Grass
<i>Bromus inermis</i>	-----	Brome Grass
<i>Cichorium intybus</i>	-----	Chicory
<i>Cirsium vulgare</i>	-----	Bull Thistle
<i>Echinochloa crusgalli</i>	-----	Barnyard Grass
<i>Medicago spp.</i>	-----	Alfalfa and Black Medic
<i>Poa spp.</i>	-----	Kentucky and Canada Bluegrass
<i>Taraxacum officinale</i>	-----	Dandelion

**Persistent invaders, may smother out other plants and may have allelopathic ( effects):**

These species should be watched carefully and immediately treated with herbicide or hand-pulled.

<i>Agropyron repens</i>	-----	Quackgrass
<i>Arctium minus</i>	-----	Burdock
<i>Carduis acanthoides</i>	-----	Wetted Thistle
<i>Cirsium arvense</i>	-----	Canada Thistle
<i>Convolvulus spp.</i>	-----	Bindweeds
<i>Daucus carota</i>	-----	Queen Anne's Lace
<i>Euphorbia esula</i>	-----	Leafy Spurge
<i>Melilotus spp.</i>	-----	Sweet Clover (Yellow & White)
<i>Pastinaca sativa</i>	-----	Wild Parsnip
<i>Phalaris arundinacea</i>	-----	Reed Canary Grass
<i>Sanchnus arvensis</i>	-----	Sow Thistle
<i>Trifolium pratense</i>	-----	Red Clover

Some of these species can be found on: <http://appliedweeds.coafes.umn.edu/> to aid in identifying them. Otherwise, please contact the Anoka Conservation District for assistance



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