Native prairies and savannas once covered large expanses of land in the Great Lakes states. These grasslands were interspersed with wetlands, and where the two habitats met a diverse mixture of wildlife species thrived. In areas where native grasslands no longer exist, warm season grasses can be planted to benefit wildlife and water quality. Native warm season grasses planted as buffers around wetlands provide crucial nesting habitat for many duck species, including mallards, green-winged teal, American wigeon, lesser scaup, and ring-necked ducks, provide cover for upland birds, such as pheasants and songbirds, and improve water quality by filtering runoff, reducing erosion, and trapping sediments.

Warm Season Grasses

Grasslands often are referred to as prairies or meadows and consist primarily of grasses and associated wildflowers. Native grasses are divided into two main categories: warm season and cool season grasses.

Warm season grasses (WSGs) produce most of their annual biomass during summer when warm nights follow hot days. Deep root systems make these grasses drought tolerant and promote the percolation of water into groundwater supplies. In addition to using water efficiently, WSGs are efficient at removing nutrients such as nitrogen, phosphorus, and potassium from the soil. WSGs provide good cover throughout the winter and into early spring when many waterfowl species begin nesting.

Big bluestem, little bluestem, Indian grass and switchgrass are the four most common warm season grasses used in upland cover plantings. Other warm season grasses include poverty grass, broom sedge, side oats grama, blue grama and hairy grama.

Unlike WSGs, cool season grasses (CSGs) experience most of their growth during spring and late fall, when soil and air temperatures are cool. Blue joint grass, Canada wildrye, and Junegrass are some common CSGs that provide good food resources for wildlife.

Although WSGs are more difficult to establish than CSGs, they require less long-term maintenance. They also provide higher-quality nesting cover for waterfowl than do CSG plantings.
Ducks Unlimited (DU) recommends planting a grass buffer at least 100 feet wide around wetlands. A ratio of 3-4 acres of grassland for every 1 acre of wetland provides sufficient nesting habitat for waterfowl. The type of soil present at a restoration site will determine the best WSGs to plant. The USDA Natural Resource Conservation Service (NRCS) provides soil survey maps, which identify the types and locations of different soils, at no cost. DU recommends a planting rate of 4–8 pure live seed pounds per acre (PLS#/ac) depending on the objectives of the planting and the amount of clay in the soil. A higher seeding rate will provide dense nesting cover for ducks, while a lower seeding rate will provide good cover for upland birds without hindering movement. Clay soils require heavier seeding rates. Use 1–3 pounds of each of the following grasses, combined in a mix, to achieve this total rate. Consult the seed label to determine how many bulk pounds are required to obtain 1 PLS#.

Big bluestem is a perennial warm season grass that reaches a height of 5–7 feet. It grows best on well-drained upland sites with loamy sand or sandy soils, but it also grows well on wetland margins with moist soils. This grass provides excellent wildlife cover and works well in wetland buffer zones. If planting a monoculture, planting 5–8 PLS#/ac is recommended.

Little bluestem is a perennial warm season grass that grows to 2–3 feet in height. It does very well in dry, sandy or rocky soils. It does not do well in hydric (wet) soils. Little bluestem is a good forage grass for cattle and wildlife and it provides excellent cover for the latter. If planting a monoculture, planting 4–8 PLS#/ac is recommended.

Indian grass is a perennial warm season grass that grows to 5–7 feet in height. It grows in similar conditions as big bluestem, and does well in wet areas, especially wetland buffer zones. It is planted frequently as a companion grass with big bluestem. Indian grass provides excellent food and cover for wildlife. If planting a monoculture, planting 5–8 PLS#/ac is recommended.

Switchgrass is a native prairie grass that grows 4–5 feet in height. It is a warm season perennial adapted to a wide range of soil conditions, and it can be planted in saturated soils. Switchgrass is a sturdy grass that provides excellent winter cover for wildlife and has a high forage value. If planting a monoculture, planting 4–8 PLS#/ac is recommended.

* Switchgrass should make up no more than 15 percent of the seed in a grass seed mixture. It is a sod-forming grass and may take over a stand if planted at high densities.
Site Preparation

Site preparation is one of the most important factors in determining the success of a prairie planting. Proper soil preparation rids the restoration site of weeds, which compete for nutrients, water and light, and can hinder the growth of prairie seedlings.

Soil Preparation

The pH and nutrient levels of the soil should be tested before the site is prepared for planting, so that soil amendments can be added during soil preparation. The soil pH should be between 5.5 and 7.5 for planting most commonly used grasses. If the pH is too low (acidic) lime can be added as an amendment to the soil. If the pH is too high (basic or alkaline) ammonium sulfate can be used to lower the pH. If nutrient levels are low, phosphorus and potash fertilizers can be added to the soil. Nitrogen fertilizer is not recommended as it stimulates the growth of weeds, which can choke out the slower-growing prairie seedlings. Your local NRCS office can evaluate soil tests and offer professional recommendations on any needed amendments.

Certain chemicals leave residues in the soil that can kill WSGs long after they have been applied. If these chemicals have been applied, it may be necessary to delay seeding. Common chemicals such as Scepter, Tricept and Squadron, which contain the active ingredient Imazaquin, leave a residue that will kill WSG seedlings. If Imazaquin was applied, wait one year to allow residue to dissipate before seeding WSGs.

Vegetation Removal

The next step in site preparation is vegetation removal. Mowing, burning, herbicide application, cultivating or a combination of these methods can be used to remove vegetation. Herbicide application and cultivation usually are the most effective methods of site preparation for large sites. If applying herbicides to remove the vegetation on the restoration site, apply a glyphosate-based chemical, such as Roundup, which does not persist in the soil, before seeding. The timing of herbicide application is critical. Always follow the manufacturer’s instructions. If cultivating, plow or disk the site and level the area using a harrow or cultipacker.

The number of times the site should be treated with herbicides or cultivated will vary. Crop fields (corn, soybeans or small grains) that have remained in cultivation through the growing season immediately before being planted to WSGs are among the easiest sites to prepare. Frequently, only one herbicide application or one cultivation is needed to rid these sites of weeds. Spray in mid-spring for a spring planting or after crop removal for a fall planting.

Old, fallow fields are among the most difficult sites to prepare for prairie plantings because they typically contain a high concentration of perennial weeds. At least one full growing season is needed to prepare a fallow field for planting using cultivation. The site should be cultivated several times between early spring and fall to deplete the soil of weed seeds. If applying an herbicide the site should be mowed before herbicide application. Following regrowth, Roundup should be applied at least two times for a spring planting: once in the fall and once in the spring. If the site has heavy broadleaf weed concentrations, a 2,4-D chemical can be applied in addition to the Roundup.

Stand Plantings

There are several techniques that can be used to plant native grass mixes, including broadcast seeding, air seeding and mechanical seeding.

Broadcast seeding is similar to planting a lawn. Either spread the seed by hand or use a hand-cranked or a power broadcast seeder. If broadcasting, 25 percent more seed will be needed to assure adequate stands. To help distribute the seed more evenly, the seed can be mixed with a carrier. Moistened sawdust, vermiculite and peat moss make excellent carriers because they stick to the seed. One bushel of carrier is enough for a 1,000-square-foot planting area.

To cover the planting area evenly, half of the seed should be spread while traveling in one direction across the site, and the rest should be spread while walking perpendicularly to the first direction. Once the seed has been broadcast, the seed should be worked into the soil by raking or by dragging a toothed drag or a piece of chain link fence. The seed should be covered lightly with ¼ – ½ inch of soil. Lastly, the seedbed should be packed using either a cultipacker or a roller. Proper seed-to-soil contact is critical for seed germination. If the soil is wet, do not roll the site; this will compact the soil and the seed will stick to the roller. Broadcast seeding in late March, when there is still snow on the ground, also is an effective way to establish seed-to-soil contact. The freeze and thaw cycle will work the seed into the ground. This technique is most effective with switchgrass.

(continued on back)
(Stand Plantings continued)

Air spreaders can be used to plant WSGs on sites that have been prepared by cultivation. Air spreaders usually require debearded seed. Although debearded WSG seed is becoming more common, it is usually more expensive than non-debearded seed. To aid in spreading the seed, phosphorous or potash fertilizer should be added to the spreader at a rate of 120 pounds per acre. After seeding, the site should be rolled with a cultipacker to ensure proper seed-to-soil contact. The soil should not be rolled if it is wet.

No-till drills or mechanical seeders specially designed for prairie seeds are effective tools for planting native WSGs. These drills do not require sites to be conventionally tilled. If the site was cultivated, the soil should be packed firmly prior to planting. It is important not to plant WSG seed too deep when using a no-till drill. Often, these drills are available to rent from the local soil conservation district, Department of Natural Resources (DNR) office or conservation groups such as Pheasants Forever.

Stand Management

The first year of growth is critical to the success of a prairie planting. During the early stages of establishment, weeds must be kept under control to reduce competition with WSGs. However, once WSGs are established, they require minimal long-term maintenance. With proper maintenance native grasses and wildflowers can flourish.

Year One

Mowing and herbicides can be used during the first year to combat weeds. In the first year, a flail-type mower or a string trimmer (depending on the size of the site) can be used to mow weeds to a height of 6 inches. Most grasses and wildflowers will not grow taller than 6 inches early in their first summer and will not be damaged by mowing. Weeds should be cut back from when they reach a height of 8–12 inches until mid-August. WSGs put on most of their height in the fall and mowing after mid-August can damage young plants.

Alternately, herbicides can be used to control weeds during the first year of a grass planting. Plateau can help control weeds that emerge after WSGs have become established, but this herbicide will kill many types of wildflowers. Plateau-tolerant wildflowers can be chosen for mixes planted on sites where weeds are expected to be a problem. The timing of herbicide application depends on the weeds present at the site. For most annual and perennial weeds, herbicide should be applied in late spring or early summer. Broadleaf weeds may require herbicide application in summer or late fall. Herbicides can be broadcast sprayed on an entire site, spot-sprayed on specific areas or wick applied on targeted weeds. Always follow label instructions when using herbicides. If additional information is needed, contact your local county extension office for assistance.

Year Two

Before the WSGs have greened up (usually in late April or early May) herbicides can be sprayed to control cool season weeds. Remember to avoid applying herbicides if certain wildflowers are present in your native grass mix. Because fewer weeds are present during the second year, spot-spraying or wicking herbicide on individual weeds is an effective control method. Mowing may be necessary in late spring or early summer if weeds persist.

Long-Term Management

Prairie grasses require minimal long-term maintenance. To maintain the productivity of the stand, the vegetation should be burned or mowed once every three to five years. Controlled burns are the preferred method to maintain WSG stands because they mimic the wildfires that occur naturally on the prairies. Controlled burns usually are conducted in early spring because spring burns control unwanted weeds and shrubs and stimulate plant growth by eliminating dead plant material and exposing the soil surface to sunlight. Burns should not be conducted after spring weed growth has reached 1 foot in height. Burning is not recommended until prairie plantings are at least three years old. Check state and local laws prior to implementing a controlled burn program; planning and implementation assistance can be obtained from the local fire department or DNR office.

Mowing is an option on sites where controlled burning is not possible. Mowing in mid-spring will remove the previous year’s growth and cut back cool season weeds. The thatch should be removed from the site to expose the soil surface to sunlight. Do not mow shorter than 6 inches and always inspect the WSGs prior to mowing to ensure you are mowing higher than their new spring growth.

A Lifetime of Enjoyment

Patience is essential when establishing prairie grasses and wildflowers, but once established and properly maintained, your warm season grass planting will attract countless wildlife and will contribute to improved water quality within the watershed for years to come. Enjoy your prairie planting and happy wildlife watching!

References


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