



ESTABLISHMENT

General Guidelines for Native Grasses and Forbs

Why Use Natives?

Native plants are those that have evolved over thousands of years to adapt to the geography, hydrology, and climate of a particular region. As a result, native plants form communities that provide habitat for a variety of wildlife, including pollinators, deer, songbirds, upland game birds, and beneficial insects.

Because they are adapted to local conditions, native plants provide a beautiful, hardy, drought resistant, low maintenance, often year-round landscape while benefiting the environment. Once established, they often save time and money by eliminating the need for fertilizers, pesticides, water, and by requiring minimal maintenance.

In contrast, non-native species commonly planted for conservation purposes are either annuals that require re-planting every year, or are perennials that tend to become invasive. These monocultures typically do not result in species diversity associated with healthy wildlife populations.

Where to Plant

Native grasses and forbs (non-woody plants) can be planted for use as field borders, or filter strips. They are ideal for use in whole-field conversions and add value in non-productive areas. They serve as soil stabilizers on slopes and on edges adjacent to riparian areas. They are prime candidates for use in oil or utility right-of-ways, and in critical areas like sloping, highly erodible lands. They are an excellent choice in areas where creation or improvement of wildlife habitat is a goal.

What to Expect

Native plants can be slow to establish and many landowners assume the planting has failed when they do not see a tall, thriving stand the first year. However, during the first year the native plants are establishing root systems and growth above ground may be minimal. As long as weeds do not overtake the stand, the natives will continue to develop and it may not be until the second or even third growing season that the stand is fully established. If weeds become a problem, there are selective herbicides that can be used to keep the weeds in check without damaging most of the natives.

Site Preparation

Proper site preparation is often overlooked, yet it is one of the most important steps in establishing a successful planting. Taking the time to evaluate the cropping history and past chemical applications will help address potential problems prior to planting, and greatly increase the success.

For example, if pre-emergent herbicides have been used extensively in the past, they may linger in the soil and have a detrimental effect on many of the native species. On some sites, years of continuous cropping may have resulted in lower soil fertility. Prior to site/ seedbed preparation, the soil should be tested for basic nutrients. If low levels are detected, application of these elements should be considered. Only phosphorus and potassium as recommended by the soils test should be applied during seedbed preparation. Fertilizers applied at the time of planting will only encourage weeds. Avoid applying nitrogen until the native stand is established (in the next 2-3 years).

Weed Control

Excessive weed competition is the most common reason plantings of native grasses and forbs fail. Desirable native plants do not compete well with aggressive weedy plants. Weeds compete for light and moisture that native plant seedlings need to survive. Native plants are generally slow to germinate and establish. If weeds are not controlled or the competition reduced before or during the first year of planting, the growth of native grasses, forbs, and legumes will be severely affected. On fields where heavy weed infestation exists, one to two years of concentrated weed control prior to the intended native planting may be needed. Proper site and seedbed preparation before planting can significantly reduce weed competition in the first few years after planting. Site and seedbed preparation may be accomplished using chemical, mechanical or a combination of chemical and mechanical methods.

Chemical

Chemical site preparation uses herbicides to eliminate existing vegetative cover present in the field. Typically some type of non-selective herbicide (e.g. glyphosate) is used but only when undesirable vegetation exists. Properly treated fields will have a cover of dead plant material and have minimal living vegetation. Chemical site preparation will usually require multiple applications over a period of time. Treatments are often needed in the spring-summer and fall-winter to target both warm and cool season weeds. Chemical site preparation should not be used when inter-seeding into already established stand containing desirables.

Chemical site preparation should be considered when a no-till grassland drill will be utilized for planting the native seeds, or when it's important to maintain some type of cover on the field for erosion control. Chemical site preparation should not be used if seeds will be broadcasted. Chemically prepared seedbeds should also be considered if the landowner has inadequate tillage equipment available.

Mechanical

Mechanical site preparation involves using tillage to destroy the existing vegetative cover that is present on the field. Operations may include disking, sweeps, or moldboard plowing that completely destroys undesirable vegetation and may bury weed seeds at a depth where they cannot germinate. Following the final plowing, equipment such as a roller, harrow, cultipacker, or other implement should be used to firm but not pack the final seedbed. Depending on the vegetative composition of the site, mechanical site preparation will require multiple applications over a period of time to address all your weed problems. Often disturbance is needed in the spring, summer, and fall to target both warm and cool season weeds.

Consider mechanical site preparation when plans involve using a conventional grassland drill (i.e. without no-till capacity), or using a broadcast seeder. Mechanical site preparation should be considered if the producer needs to prepare a site heavily infested with undesirable vegetation. Mechanically prepared sites should be a clean, weed free, firm, moist, and smooth prior to planting. Mechanical site prep should not be considered if any potential erosion problems exist, or if desirable vegetation is present and plans include interseeding other species.

Combination

A combination of chemical and mechanical treatment is often employed when hard to control vegetation exists or severe weed pressure is present. Under these conditions, existing vegetative cover may be eliminated by chemical burn down followed by disking. This method usually involves repeated chemical and/or mechanical treatments to achieve complete control of weeds, and may take up to a full year to accomplish.

Sites prepared using a combination of treatments may be planted with a no-till grassland drill, a conventional grassland drill (i.e. without no-till capacity), or using a broadcast seeder. Careful consideration must be given to any potential or existing erosion problems.

Seedbed Preparation and Planting Methods

A firm seedbed is crucial to successful native plantings. While a well-disked fluffy seedbed is desired for planting some conventional crops, the same fluffy seedbed will result in failure of native plantings. If you walk across the seedbed and your footprints are clearly visible, the seedbed is not firm enough. A cultipacker should be used to firm a seedbed that has been disked. **Native plant seeds require good seed-to-soil contact and should never be planted more than ¼ inch deep.** A fluffy seedbed typically results in poor seed-to-soil contact and seeds that are planted too deep. (The exception to this rule is Eastern gamma grass which should be planted about 1 inch deep.)

Native plants can be planted either by drilling with a specialized no-till drill or broadcast. Many of the native seeds are very fluffy and will not flow through conventional drills. A specialized drill designed to accommodate fluffy seeds is preferred. Some of these drills have multiple seed boxes and can plant fluffy seeds and smooth seeds at the same time and at a very low seeding rate. These drills are available for rental through some of the RC&D councils or from the LA Dept. of Wildlife and Fisheries.

Smooth seeded natives can be planted successfully by broadcasting with traditional broadcast seeders. Fluffy seeded species can be broadcast as well, but some type of carrier (pelletized lime, cracked corn) is needed to help distribute the seed. The seedbed should be cultipacked before and after planting to assure good seed-to-soil contact.

Purchasing Seed

It is particularly important to pay attention to the seed label when purchasing native plant seed. The label contains among other things, information regarding the cultivar, percent pure seed and percent germination. This information is critical because for each species of native seeds, there may be numerous cultivars or varieties. For instance, Aldous, Camper, Cimmaron, Pastura and Blaze are cultivars of little bluestem and not all will thrive in Louisiana. Cultivars adapted to growing in Louisiana or the deep south should be selected.

Seeding rates for native plants are usually expressed as “PLS” or pure live seed. In a bag of native seed there is frequently a significant amount of non-seed material (stems, leaves, debris) and the germination rate may be relatively low. This means that it may take several additional pounds of bulk seed to actually plant the prescribed amount of pure live seed. For example, if a seed tag indicates 75.3% pure seed and 68.7% germination, PLS is calculated:

$$\text{PLS} = (\text{percent purity} \times \text{percent germination}) / 100 \quad \text{or} \quad 75.3 \times 68.7 / 100 = 51.7\% \text{ PLS}$$

Then, if we wanted to plant 5 lbs. PLS of seed per acre, bulk seed that is needed is calculated:

$$\text{PLS rate per acre} / \text{percent PLS} \quad \text{or} \quad 5 \text{ lbs PLS per acre} / .517 \text{ PLS} = 9.67 \text{ lbs of bulk seed.}$$

Seed Rates

Seeding rates are determined by the landowner objectives and if enrolled in USDA conservation programs, the program requirements. If wildlife is an objective, the planting should consist of a mix of species that will create a diverse stand of native plants containing both grasses and wildflowers. Some common species used in native plantings for wildlife include Indian grass, big bluestem, little bluestem, partridge pea, plains coreopsis, black-eyed Susan and Illinois bundleflower. In situations where wildlife is a priority, seeding rates are usually low (4-6 lbs. PLS of a mix per acre). If the landowner or program objective is forage production or erosion control, the mix may be less diverse and consist primarily of native grass. In these cases, seeding rates are generally higher.

Success of native plantings depend on several important variables, some of which have been addressed in this publication, or in others of this series. Please contact your local NRCS or LDWF office for additional facts and more specific recommendations.



Chemical and/or mechanical preparation may be employed to reduce competition of undesirable plants prior to planting native grasses and forbs.



Chemical treatment reduces soil disturbance, leaving a seedbed well suited to no-till planting.



Understanding seed mixtures, sufficient seeding rates and proper drill settings will help ensure that seeds are planted correctly.