

# Reseeding Natives in South Texas: Top 10 Mistakes to Avoid

South Texans who want to use their property to provide for wildlife or for multiple purposes—such as to support wildlife, graze livestock, and support a biodiversity of organisms—are becoming interested in reestablishing native plants on their land (Fig. 1). Native plants can enable a site to support agricultural and ecological activities as well as reduce erosion and help the landscape withstand drought.

Reseeding native plants is one of the most technically demanding land management practices in South Texas. If you are planning to reseed natives, **avoid** the practices below, which will lead to disappointing results.

## 1. Using poor-quality or the wrong type of seeds

Native plants are adapted to the soil and climate of specific areas. When possible, use seed from native plants that originated in the ecoregion of your planting site. To learn what ecoregion your land is in, see the *Gould Ecoregions of Texas* map, which is posted on the Texas Parks and Wildlife website at [http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd\\_mp\\_e0100\\_1070ac\\_34.pdf](http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_mp_e0100_1070ac_34.pdf).

Buy certified-origin native seed for your area from a dealer approved by the Texas Department of Agriculture (<http://texasagriculture.gov/ReportsPublications.aspx>). Origin information is documented for all named seed sources, such as those developed by South Texas Natives or the USDA–NRCS Plant Materials Centers in Texas.

If appropriate seeds of this type are unavailable, the USDA–NRCS range planting guidelines suggest that you buy seeds of native plants that originate within 200 miles north, 300 miles south, 100 miles east, and 200 miles west of the desired planting site. If the seed sales representatives cannot provide the origin of their native seeds, it may be best to avoid using them.

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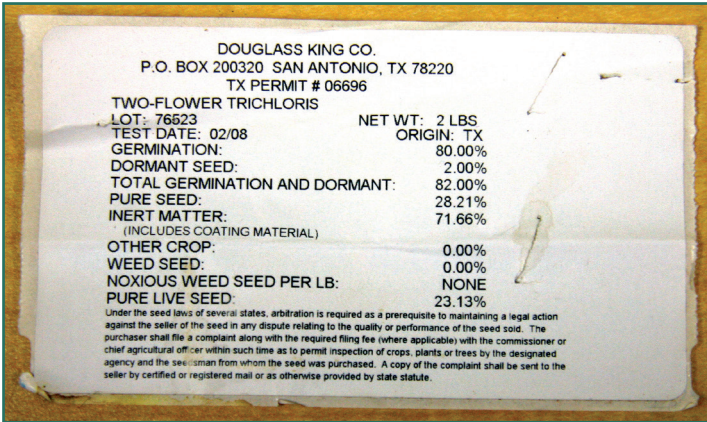
Ensure that the seed is of high quality and is bought on the basis of price per pound of pure live seed (PLS). Reputable dealers sell native seed by pounds PLS.

PLS is a measure of the amount of weight in a bag of seed that is viable. It is calculated by multiplying the purity of the seed lot by the percent viability of the seed lot. For purchased seed, check the seed bag tags for purity, percent pure live seed (PLS), the kind and amount of contaminant weed or other crop seeds, and the results of a tetrazolium chloride test (TZ, a test



Figure 1. Native prairie.

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**Figure 2.** A seed bag tag showing the percentages of pure live seed and contaminated seed in the mix.

to determine whether the seed is viable but dormant) and/or more comprehensive germination tests (Fig. 2).

Because quality varies greatly from seed lot to seed lot, it is vital that you buy and plant native seed only according to its PLS value, never by bulk weight alone.

## 2. Planting just a few native species or a pre-set mix of species

Native plant communities function best if they include a diversity of species and plant types. Few native plants will dominate a site all season, and different species may germinate and establish under different weather conditions. If you plant only a few species and the weather post-planting is not ideal, the stand may establish late or on a limited scale.

Many generic, or pre-set, native seed mixes available commercially are poorly suited for South Texas. For example, many native prairie mixes of familiar native grasses such as little bluestem, switchgrass, big bluestem, and Indiangrass are



**Figure 3.** Slender grama, an early-successional plant.

widely marketed but unsuited for much of South Texas. Many generic native seed mixes are designed for large-scale markets such as the Conservation Reserve Program (CRP) in specific regions like the Midwest.

Custom mixes based on the soils and plant communities that occur in your specific area will perform much better than many generic seed mixes. For information on soil and location specific plant selection, see the USDA–NRCS Web Soil Survey.

In addition to planting the right species, include a combination of functional groups, such as grasses, legumes, forbs (broadleaf plants), and woody plants. Also plant species that are suited for both short- and long-term benefits for the restoration site.

In all native plant communities, different plants will colonize the area one after another in a process called plant succession. The three main groups—early-, mid-, and late-successional plants—replace each other gradually over time, depending on disturbances such as drought or grazing (Figs. 3 through 5).

Growing different types of plants will help the stand succeed, adapt, and persist long-term.

## 3. Planting the seed too deep or with the wrong equipment

Native seeds are small and have specific germination requirements. They must have good seed-to-soil contact and be planted no deeper than ¼ inch below the surface.

Because standard grain drills produce poor results with natives, use a seed drill designed specifically for planting native seeds. In most cases, the drill will need to have more than one seed box to plant a mixture of native seeds of different sizes and textures. If a native seed drill will be used, instruct the seed company to mix the seed blend accordingly.

Broadcast seeding (scattering seed by hand or machine over a relatively large area) will work if afterward you go back over the land with a drag and/or pack the soil to ensure seed-to-soil contact; these added steps will also help prevent seed loss from animals, wind, and water runoff.

A vital step is to calibrate the seeder or drill to ensure the proper planting rate. If you plant less than the recommended amount of seed, the stand will be thin, which encourages weed infestations. Planting more seed than is recommended wastes money because it seldom improves stands.

## 4. Cutting corners on seedbed preparation

The seedbed must be favorable for seed germination and plant establishment. It should be firm, level, uniform, and free of debris, rough dirt clods, and loose or powdery soil. More seed will germinate if the soil is moist before planting.

If aggressive weeds or unwanted exotic plants are common on a restoration site, begin to treat these unwanted plants about



**Figure 4. Pink pappusgrass, a mid-successional plant.**

1½ to 2 years before the planting date, and eliminate the seed-bank in the soil. Methods include repeated cultivation, and cultivation with repeated herbicide applications.

### **5. Planting at the wrong time of year**

In South Texas, most native seeds germinate best in mid-spring (late February to April) or late summer through early autumn (late August to October). Most native seeds available for planting are highly unlikely to establish in winter or summer. Even if the seeds do germinate under these harsh conditions, subsequent weather conditions make successful plant establishment unlikely.

If you must plant during unfavorable times, consider also seeding a cover crop such as wheat or oats in the winter or browntop millet in the summer.

### **6. Grazing livestock or conducting other management practices too soon after planting**

Reseeded native plants need time to grow large enough and to establish a strong enough root system to withstand grazing. After reseeding a site, graze livestock elsewhere for 1 year

under normal conditions and for 3 years after a drought. Do not seed such a large area that you lack separate pastures for your livestock.

If you plan to use prescribed fire as a future management treatment, you should typically allow a minimum of 2 years for plant establishment before the burn.

It is best to allow the seeded plants to fully mature and produce seed at least once before grazing or applying a land management practice. This minimizes the chance of plant loss if weather or overuse severely damages the restored plants.

### **7. Neglecting to control undesirable plants**

Even on well-prepared sites, unwanted plants will invade areas where native seeds are planted. The most effective way to reduce these undesirable plants' effect on native seedlings is to control them early before they produce seed and spread.

Mowing can suppress common broadleaf weeds such as cowpen daisy, pigweed, or annual sunflower and allow other seeds to receive direct sunlight for germination.

Chemical options include both broadcast and individual plant treatments. In fields of native grasses only, a 2,4-D herbicide can be applied once the grasses are 6 inches or taller and have developed true leaves (those growing after the seed leaves, which emerge first). Check the label to make sure that the herbicide does not target any of the planted species.

For individual plant control, glyphosate can suppress younger plants. Bigger plants may require more chemical or become difficult to control. Good seedbed preparation well in advance of planting will greatly reduce the amount of undesirable plants that must be controlled later.

### **8. Planting late-successional species only**

For South Texas, 50 percent of the seed mix should be seeds of early successional plants, which quickly colonize disturbed areas. These plants include deer pea vetch, green sprangletop, hooded windmillgrass, Hookers plantain, Rio Grande clammyweed, shortspike windmillgrass, sand dropseed, slender grama, and Texas panicum. These plants can compete with weeds and exotic grass, making the reseeding project more likely to succeed.

Another 25 percent of the mix should be seeds of mid-successional stage plants, such as Arizona cottontop, awnless bush sunflower, hairy grama, pink pappusgrass, plains bristlegrass, silver bluestem, Texas grama, and whiplash pappusgrass.

Many of the most desirable late-successional plants are slow to colonize and grow on most restoration and reclamation sites, making them poor competitors with quickly establishing non-native plants. However, when seeded with early and mid-successional plants, they can grow over time and successfully establish.



**Figure 5. False Rhodes grass, a late successional plant.**

Typically, a native seed mix should include only 25 percent of these late-successional plants. Examples include prairie acacia, big bluestem, little bluestem, sideoats grama, yellow Indiangrass, multiflowered false rhodesgrass, false rhodesgrass, big sacaton, Canada wildrye, and orange zexmenia.

## 9. Expecting overnight results

Even when the land receives above-average rainfall after planting, reseeded native plant communities rarely establish or mature to their full potential in less than a year after planting, or within 3 years during drought. In general, give any native planting at least two full growing seasons with average or above average rainfall before deciding whether the project has succeeded or failed. Be patient!

## 10. Failing to seek professional help and advice

Given the cost of reseeded, it pays to take the time to seek advice and do it right the first time.

Organizations that offer free technical assistance include the South Texas Natives program of the Caesar Kleberg Wild-

life Research Institute at Texas A&M University–Kingsville (<http://ckwri.tamuk.edu/research-programs/south-texas-natives/>); the USDA–NRCS E. “Kika” de la Garza Plant Materials Center (<http://Plant-Materials.nrcs.usda.gov>); and the Texas A&M AgriLife Extension Service (<http://agrilifeextension.tamu.edu/>).

For government-supported financial aid to share the costs of native plant reseeding, contact Texas Parks & Wildlife Department (TPWD) regarding the landowner incentive program, USDA–NRCS regarding EQIP, WHIP, or other cost-share programs, or the U.S. Fish and Wildlife Service for the Partners in Flight program (<http://www.pwrc.usgs.gov/pif/>).

Publications with more information on native reseeding include the Restoration Manual for South Texas, produced by the South Texas Natives program, and other publications in this Reseeding Natives in South Texas series from the Texas AgriLife Extension Bookstore (<http://www.agrilifebookstore.org/>):

- *Planting Techniques and Equipment*
- *Site Preparation*
- *Selecting the Seed Mix*
- *Post-Planting Management*
- *Targeting Noxious Plants*

How-to videos are also available on the Web:

- *The Benefits of Reseeding with Natives* (<http://youtu.be/KmSv9kCD7uU>)
- *Seedbed Preparation* (<http://youtu.be/8HXjTXNqYYs>)
- *Reading Tags, Storage, and Handling of Seed* (<http://youtu.be/aLKu3lExXIw>)
- *Selecting Native Seed Mix* (<http://youtu.be/bhZwroeq2dI>)
- *The Parts of a Seed Drill and Calibration* (<http://youtu.be/VhMlfapT1vQ>)
- *Timing and Planting Expectations* (<http://youtu.be/jGGq8TrQtC4>)
- *Maintenance with Brush Management* (<http://youtu.be/00TjO-t4Ze0>)

Private consultants and seed company representatives can provide fee-based assistance. Always check their references and choose specialized native reseeding consultants with experience in your location.

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