

Reseeding Natives in South Texas: Selecting the Seed Mix

The success of a native planting can depend on choosing the right seed mix (Fig. 1). Buying seeds for a vegetable garden is easy—they are readily available, almost guaranteed to grow in most soil types, and can be grown under many conditions.

However, native seeds must be selected according to their ability to grow in a specific soil type and under certain weather conditions. How will you know which seeds to buy? Three resources can help you determine which plants may do well at your South Texas site:

- Nearby native remnant fields
- Ecological site descriptions (ESDs) produced by the U.S. Department of Agriculture’s Natural Resource Conservation Service (USDA–NRCS)
- The South Texas Natives website at <http://ckwri.tamuk.edu/research-programs/south-texas-natives/>

Nearby native remnant fields

Areas that have the same soil type as yours may offer clues about which native plant species to reseed. Take some plant field guides to a nearby area where native plants grow, and identify some of the dominant plants.

It is helpful to know some history about the property, such as whether livestock overgrazing may have eliminated many of the favorable forage grasses. Nevertheless, exploring nearby areas can give you some hints as to what plants could do well at your reseeding site.

Ecological Site Descriptions

Ecological site descriptions are the product of a land classification system used by the USDA–NRCS. These classifications are based on soils, location, and annual precipitation.

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An ESD lists the plant species typically found on a specific soil type or location. ESDs are available via:

- The Web Soil Survey site (<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) by the U.S. Department of Agriculture’s Natural Resource Conservation Service (USDA–NRCS). On this site, first define your “Area of Interest” and then access the ESD from the “Soil Data Explorer” and “Ecological Site Assessment” tabs.
- The SoilWeb application (<http://casoilresource.lawr.ucdavis.edu/drupal/node/902>), which was developed by the California Soil Resource Lab of the University of California–Davis. Your location will be determined using your phone’s internal GPS. This application can also be downloaded for use with Google Earth on a computer.



Figure 1. A seed mix that includes more than a dozen plant species.

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South Texas Natives website

South Texas Natives is a project of the Caesar Kleberg Wildlife Research Institute at Texas A&M University–Kingsville. Its website lists seed mixes according to soil classification and location in South Texas. To determine the seed mix for your area:

1. Go to <http://www.ckwri.tamuk.edu/research-programs/south-texas-natives/seeding-recommendations/>.
2. Click on the map where your site is located.
3. Choose the predominant soil types (coarse, fine, shallow, and saline) that match your soils most closely.
4. Review the table for a list of seeds, specific varieties, and percentage of mix, as well as information about the dealers that sell the seed.
5. Click on the plant name for more information about that species.

Choosing seeds for the mix

After determining the plant species that may grow well at your site, ask native seed dealers about which of those seeds they sell. Because native seed supplies are often limited, contact the dealers well before your expected planting date.

Dealers often offer seed mixes that were developed for large-scale markets in a particular region. Although a custom mix tailored for your site will usually cost more, it will be more likely to provide better results.

How many species should your seed mix contain? The answer is usually *the more the better* (Fig. 2). Successful plantings commonly have seed mixes of more than a dozen grasses, legumes, woody plants, and forbs, or broadleaf plants.



Figure 2. Examples of different types of seed mixes. Separate boxes are used to plant hard seeds and fluffy seeds.

Because each seed may germinate under slightly different weather conditions, planting a variety of species will increase the likelihood that something will initially establish on the site. Planting many species also provides some insurance against minor differences in soils that often occur in rangelands.

Also, plants can be classified as early-, mid-, and late-successional stage species. Plants that initially colonize a disturbed site are regarded as early successional plants, which are typically followed by mid- and then late-successional stage plants. Disturbances such as drought, fire, and grazing cause most native stands to change continually, and restart the successional cycle. If the mix includes seeds from a diversity of successional stages, the restoration planting will be more successful initially and more resilient long-term.

The seed mix (in general) should be about half early-successional, a fourth mid-successional, and a fourth late-successional plants.

Early-successional plants will quickly colonize your planting site. These include such plants as Rio Grande clammyweed, sand dropseed, slender grama, Texas panicum, green sprangletop, Hookers plantain, deer pea vetch, hooded windmillgrass, and shortspike windmillgrass.

Mid-successional plants such as silver bluestem, plains bristlegass, Arizona cottontop, hairy grama, Texas grama, pink pappusgrass, whiplash pappusgrass, and awnless bush sunflower are often the most common and productive plants in established habitats.

Late-successional plants are slow to colonize and grow on most restoration and reclamation sites, making them poor competitors against quickly establishing non-native plants. However, when seeded with early and mid-successional plants, the more desirable species will establish over time. Typically, a native seed mix will include about 25 percent of these late-successional plants, and these plants usually grow best as time passes since soil disturbance.

Examples of late-successional plants include prairie acacia, big bluestem, little bluestem, sideoats grama, yellow Indiangrass, multiflowered false rhodesgrass, false rhodesgrass, big sacaton, Canada wildrye, and orange zexmenia.

Also important is the seeds' origin. Whenever possible, buy native seeds that are certified by the Texas Department of Agriculture for origin and quality. Origin refers not to the location of the seed grower, but the location where that seed stock originally grew in the wild. Origin information is documented for all named seed sources, including those developed by South Texas Natives and the USDA–NRCS Plant Materials Centers in Texas.

If possible, use seed from native plants that originated from your ecoregion. It is not enough for a tag to list the

seed origin as “TX.” If seed from within your ecoregion is unavailable, the USDA–NRCS range planting guidelines suggest that you buy seeds of native plants originating from within 200 miles north, 300 miles south, 100 miles east, and 200 miles west of your planting site. If the seed dealer cannot provide origin information, it may be best to find another source.

How much seed to buy

Never buy seed based on bulk weight alone. Instead, buy according to the amount of pure live seed (PLS). PLS is the weight of a particular seed that is actually viable, or will likely germinate. This value is determined by multiplying the purity (amount of seed minus other contaminant weed or crop seed) by the percent viability (amount of seed that may actually germinate) of the seed lot.

Although the desired PLS varies by species, make sure that the final seed mixture will result in a minimum of 20 and maximum of 40 pure live seeds per square foot of planting area. Therefore, the number of pounds of PLS per acre depends largely on the seed weight of each species and the quality of the exact seed lots being used. See Table 1 for a seed mix calculation.

The seed bag tag should list the PLS as well as other information such as germination and dormancy (Fig. 3). Dormancy can be desirable to delay germination if weather conditions are unfavorable for immediate germination, such as a winter planting or in cases where drought develops after planting.

You can store the seed for up to 1 year in an area that is dry, cool (65 to 75°F), and free of pests. For longer periods, store it in a climate-controlled storage facility such as a refrigerated room. The temperature and humidity of the storage facility should not exceed 100. So, if the temperature is 60°, the humidity should be below 40 percent.

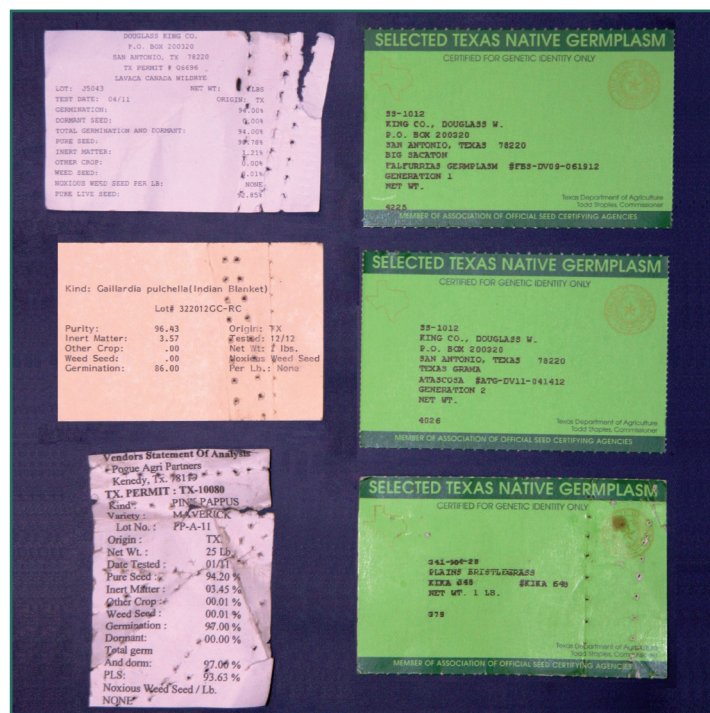


Figure 3. Native seed tags.

Table 1. Example seed mix calculations for coarse soils in Jim Wells County, Texas.

Plant	Seral stage	Percent of mix (%)	Recommended seeding rate (lb PLS/acre) ¹	PLS needed for mix (lb PLS/ac mix) ²	Percent PLS of bag/lot (%)	Bulk amount needed per acre (lb bulk seed/ac) ³
'Dilley' slender grama	Early	12	8	0.96	79.30	1.211
'Atascosa' Texas grama	Mid	10	9	0.9	64.05	1.405
'Chaparral' hairy grama	Mid	10	8	0.8	61.26	1.306
'Mariah' hooded windmillgrass	Early	7	0.66	0.05	64.63	0.032
'Maverick' pink pappusgrass	Mid	8	3	0.24	93.63	0.256
'Welder' shortspike windmillgrass	Early	7	0.5	0.04	57.90	0.069
'Zapata' Rio Grande clammyweed	Early	7	8	0.56	85.00	0.659
'Kinney' false rhodesgrass	Late	8	1	0.08	80.00	0.064
'Hoverson' deer pea vetch	Early	7	2	0.14	70.80	0.198
'Divot' tallow weed blend	Early	7	10	0.7	91.00	0.721
'Van horn' green sprangletop	Early	7	6	0.42	64.25	0.654
'Hildago' multiflowered false rhodesgrass	Late	10	0.5	0.05	46.05	0.109

¹ Recommended seeding rate is published by the seed developer and will vary by variety

² Percent of mix (%) x recommended seeding rate (lb PLS/acre) ÷ 100

³ Amount of PLS needed for mix (lb PLS/ac mix) ÷ (% PLS of bag/100)

Always retest the quality of seed stored for more than a year before use. Consult with the company that sold the seed about retesting. When possible, use the same laboratory for both tests, as seed sampling and testing methodologies can vary slightly from lab to lab.

For more information

The Reseeding Natives in South Texas series also offers these publications:

- *Planting Techniques and Equipment*
- *Site Preparation*
- *Post-Planting Management*
- *Targeting Noxious Plants*
- *Top 10 Mistakes to Avoid*

They are available from the Texas AgriLife Extension Bookstore at [http:// www.agrilifebookstore.org/](http://www.agrilifebookstore.org/).

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>)

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