



TREEFOLKS



**LEARN TO GROW NATIVE
TREES FROM SEED!**



CONTENTS

Purpose of this guide.....	3
Collecting Seeds.....	4
Cleaning Seeds.....	5
Storing Seeds.....	6
Pre-Sowing Seed Treatments.....	7-8
Making a Soil Mix.....	9
Methods of Sowing Seeds.....	10
Plastic Containers.....	11
Plant Bands.....	12-15
Plastic Cones.....	16
Seed Beds.....	17
Considerations.....	18-20



WHY DO WE NEED MORE PEOPLE GROWING NATIVE TEXAS TREES?

Central Texas is facing a critical shortage of native trees due to extended droughts, extreme weather events, urban expansion, and the scarcity of key species in today's nursery trade. A strong network of local growers cultivating native trees can have a tremendous impact on ecosystem restoration efforts. Together, we can restore biodiversity, protect our water supply, mitigate erosion and flooding, create sustainable job opportunities, and build stronger, more resilient communities.

This guide offers essential tips and resources for cultivating native Central Texas trees. It can serve as a foundation for your tree-growing journey.



For additional mentorship and hands-on learning opportunities, volunteer at the Treefolks tree nursery.



COLLECTING SEEDS

Ideally, seeds are locally sourced from wild trees that are healthy and strong. This will make for resilient seedlings that are well-adapted to the unique conditions of our bioregion.

TIMING

Collect seeds when they're fully mature. In general, **dry seeds** are ready to collect when they're full-sized, dark colored, firm and dry. **Wet seeds** are ready to collect when the fruit is soft and overripe. That said, details are species-specific and exact timing varies each year.

[Here are seed harvesting tips for common Texas trees](#)



SUPPLIES & LABELING

If you keep supplies with you, you're always ready when it's time to collect!



Supplies:

buckets, tarps, paper bags, cardboard boxes, labels, markers, gloves

As soon as seeds are collected, be sure to note the species, harvest location and date. That information should be kept with the seeds and in your personal seed inventory database. Free apps like inaturalist and Airtable are helpful tools for this, but use whatever works for you.

SEED-SAVING ETHICS

When harvesting from the wild, always get permission from the landowner. Additionally, never take more than twenty percent of the seeds from an existing population and only take what you will actually plant. You don't want to prevent the tree from being able to repopulate that area, and local wildlife relies on the seeds too.

If you end up with native tree seeds that you don't plan to use, please send them to us! We'll happily grow them in our nursery for our reforestation programs.



LEARN ABOUT OUR SEED TO TREE PIPELINE!

CLEANING SEEDS

DRY SEEDS

Keep bags of seeds you've collected in a well-ventilated, pest-free space. As soon as you're able, clean them by threshing and winnowing to separate them from the remaining plant material. There's no single right way to do this. Every seed saver finds what works best for them, so use what's available and choose the most efficient method for the seed type to get the cleanest seeds possible.

Threshing - One method is to place the seed pods in a bag and stomp on them to break them open. For seeds with tough coats, like legumes, a mortar and pestle might be effective to gently crack open the pods without crushing the seeds.

Winnowing - Some common methods are sifting seeds through various sized screens, pouring seeds from one container to another in front of a light fan or breeze, swirling seeds in a bowl so the lighter debris rises to the top and can be gently blown away.

WET SEEDS

With wet, pulpy fruits, remove seeds from any moist or soft tissues. It may be easiest to soak seeds in water for a few hours to help loosen the pulp. Then rub seeds against a sieve or mesh screen to finish cleaning them, rinse thoroughly, and spread seeds out in a single layer on a screen or piece of cardboard to air dry before storage.



STORING SEEDS

Seeds should be stored in a cool, temperature-controlled area. To maximize their lifespan, a sealed container in the bottom drawer of the refrigerator works great. Otherwise, a cool, dark place indoors will do. The most important thing is to avoid temperature and humidity changes, as this can harm the seeds and reduce their viability. Generally the smaller the seed, the shorter the lifespan it has.



Not all Seeds Store Well

Recalcitrant seeds (like **acorns** and **some nuts**) must retain a high moisture content to stay viable. Since they do not tolerate dry storage, they must be sowed in a relatively short time frame. If planting right away isn't an option, keep them from drying out by storing them in moist vermiculite or sand.



PRE-SOWING SEED TREATMENTS

While veggie seeds will pop right up when you plant them, many native tree seeds don't work that way. They have evolved to germinate under specific environmental conditions, increasing their chances of sprouting at the right time for survival in the wild. Because of these adaptations, many native tree seeds cultivated in a nursery setting require specific pre-sowing treatments like **scarification** (breaking tough seed coats), **stratification** (mimicking winter) or both. These treatment methods replicate natural processes, helping seeds break dormancy and improving germination rates.



SCARIFICATION

Scarification involves mechanically or chemically weakening the seed coat. This process mimics conditions that seeds would experience in the wild, breaking the seed's external dormancy and aiding germination.

Some methods that can be used to do this are:

- Nicking with toenail clippers, dog claw clippers, sandpaper, files
- Soaking in boiling water
- Applying an acid treatment (helpful if treating large quantities of seeds, but be very careful when handling!)



STRATIFICATION

Cold stratification involves exposing seeds to the cold, moist conditions that would occur naturally over the winter. This process breaks seed embryo dormancy, signaling that it's time to germinate, and it can be done in several ways:

- Planting seeds outside in the winter and exposing them to the elements.
- Storing seeds in moist sand or vermiculite inside a plastic bag and refrigerating them for a period of time (often several months). Many growers opt for this method because they want consistent germination.



Warm stratification involves exposure to warmth. Certain species (like hollies) require multiple cycles of going through cold and warm conditions to break dormancy and trigger germination. This can be achieved by storing seeds in damp sand or peat moss at room temperature for a set period, followed by a cold stratification phase in refrigeration, then repeating the cycle if necessary.

DOUBLE DORMANCY

Some seeds have double dormancy, meaning they have seed coat and embryo dormancy. These seeds need scarification to break through the seed coat, then stratification to germinate.

PRE-SOWING SEED TREATMENTS

AERATION

When growing many trees, pre-germinating your seeds is a smart strategy. This ensures that only viable seeds are planted and precious space is not wasted on seeds that won't sprout.

To encourage quicker and more uniform germination -- especially for seeds with hard coats -- pre-soaking seeds in aerated water for 3-10 days can be highly effective.



The time seeds need to soak in water varies by species. As the radicles begin to emerge, you can remove them from the water and pot them up.



An air pump for aquarium and hydroponic systems adds oxygen to the water, helping to prevent rot, fungal growth, and stagnation. You can get one quite cheaply, or if you invest a bit more in a model with multiple outlets, more seeds can be aerated at once.



Species-specific best practices for processing/pre-sowing treatments can be found here:

[Jill Nokes - How to Grow Native Plants of Texas and the Southwest](#)

[USDA & USFS: The Woody Plant Seed Manual](#)

[Lady Bird Johnson Wildflower Center Plant Database](#)

MAKING A SOIL MIX

Common ingredients in a tree-growing medium are sifted pine bark, native soil, peat moss, sharp sand, vermiculite, perlite, and granular fertilizer. The ideal blend varies by grower, tree species, container size, stage of growth, and available materials. Everyone has different methods and growing conditions.

Soil Component Functions:

Perlite – Improves aeration and drainage.

Sand – Adds weight and enhances drainage.

Vermiculite – Balances aeration and water retention, improves nutrient uptake.

Pine bark fines – Adds organic matter and improves soil structure.

Fertilizer - Provides slow-release nutrients



MIXING THE SOIL

A good way to get an even mix is to spread the soil ingredients on a tarped area and mix them thoroughly using flat shovels. Move the pile from one end of the tarp to the other and back again to ensure the mixture is consistent and evenly blended.



The goal of a seed-starting mix is to create a light, airy texture that drains well while retaining enough moisture for germination and early growth. When making your own mix from bulk materials, some often need to be sifted to achieve this.

Then as the seedlings grow and are potted up into larger containers, they benefit from a coarser mix.

SAMPLE SOIL MIX FOR GENERAL USAGE

- 8 parts decomposed pine bark (sifted)
- 2 parts peat moss
- 1 part sand
- Slow-release granular fertilizer (like [Osmocote 19-5-8](#)), applied at 6-12oz per 10-gallons

SOWING SEEDS

Tree seeds can be started in many ways. The approach you choose will largely depend on your available resources, time, energy, and growing space. Understanding your specific goals and constraints will also help determine the most effective and efficient method for starting your tree seeds. Here are some methods to consider.



PLASTIC CONTAINERS

Plastic containers (like Cone-tainers, Deepots, and Rootmaker pots) are widely available. They're especially useful for larger seeds that grow quickly and need more space (like burr oaks), or seedlings that will later be transplanted into 1-gallon containers and grown into larger trees before planting.



PLANT BANDS

Plant bands are square, bottomless growing containers made from paperboard, and they're widely used in reforestation efforts because they can be planted directly into the ground. This growing method improves seedling survival by encouraging air pruning, which creates a strong, well-developed root system. Additionally, the containers are cost effective and their narrow shape allows for a large number of trees to be grown in a small space.

AIR PRUNING BEDS

Air pruning beds lined with hardware cloth are a cost-effective, low-maintenance option, and a single 8x4 air pruning bed can grow about 600-800 trees. Air pruning beds also create no waste, and the root-pruning process promotes the growth of healthy trees with strong, branching root systems. This method is especially useful for trees with long taproots such as oaks and nuts.



SEED BEDS

In-ground seed beds that have soil on the bottom rather than hardware cloth work well for plants that don't have large taproots. They are also helpful for seeds with unreliable germination, questionable viability, or tricky seeds that must cycle between cold and warm stratification to sprout. Planting this way allows the seeds to grow in a protected setting and germinate at their own pace.

PLASTIC CONTAINERS



Plastic containers come in different shapes and styles. The type you choose may vary based on the species you're growing and what you have easy access to. Most important is for them to be deep to accommodate root growth. Fill with a soil mix and lightly pack it down, leaving about an inch of space at the top. Then plant the seed and cover with soil.



PLANT BANDS

Plant bands are another way of growing a lot of trees in a small space. This method is especially effective for large-scale habitat restoration projects because it's an efficient use of resources and results in stronger, more resilient seedlings.

BUILDING BENCHES FOR PLANT BANDS

The plant bands sit in wooden frames on custom benches. Since the bands are bottomless and the beds are lined with only hardware cloth, air can circulate underneath, promoting natural root pruning. Benches can be designed to suit your space and growing needs. Just be sure that they're precisely measured and assembled so the bands fit tightly.

When grown using this method, a bench that is 4 x 40 feet, divided into 1 x 6 sections with wood frames, can accommodate 9,000 saplings. It's an efficient way to grow a lot of trees in a small space!



HOW DOES ROOT PRUNING WORK?

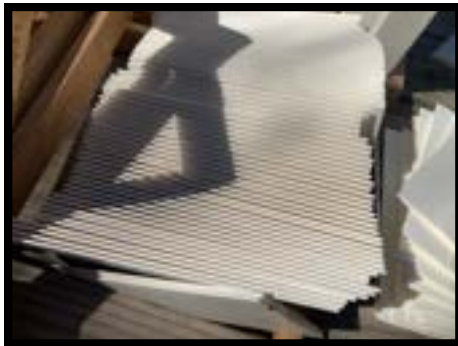
When the taproot reaches the air, it stops growing and instead focuses on developing lateral roots. This system increases the survival rate of young seedlings because it encourages a more robust root system, resulting in stronger, healthier trees once planted.



PLANT BANDS

ASSEMBLING CRATES OF PLANT BANDS

The plant bands are shipped flat. Open each plant band and assemble them in a zigzag pattern, starting from one side. They cannot be parallel or they will not stay square. A good way to check your work at the end is to look for the star-like pattern they will make.



Some people assemble the bands directly into the crates, but many growers build custom implements to streamline their process. Here is how we do it at Treefolks. We use custom-made wooden forms to place them on, square them with wooden frames, then transfer them to plastic crates.



PLANT BANDS

PACKING THE PLANT BANDS

1. Mix the soil ingredients well, add water, and do a squeeze test with your hand to check consistency. The goal is to make a mix that forms a plug at the bottom of the band. This can take some trial and error. If the mix is too crumbly, it won't hold its shape and the plants will be difficult to transport. If it's too dense or muddy, the plant roots will struggle.



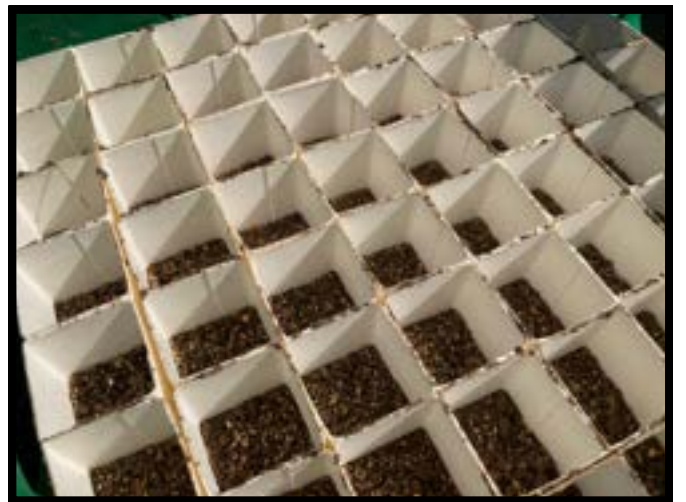
2. Line up as many milk crates as you have ready and shovel soil all the way to the top.



3. One by one, slam the crates down so the soil packs into the bands. You can make custom implements to simplify the process. Every grower has their own method.



4. Once the soil is packed down, there should be about an inch and a half of space at the top. Just enough space for a seed and soil to cover.



When packed correctly, the bands are easy to handle without the soil falling out the bottom. And the soil level at the top is even across all the bands, which is important for consistent watering.



SOIL MIX FOR PLANT BANDS

A good mix is a 50/50 blend of native sandy loam soil and vermiculite plus fertilizer (at a rate of 12 oz/10 gal of mix). Since saplings grown in plant bands will be planted directly in the ground, you want them to be well-acclimated to the native soil.

PLANT BANDS

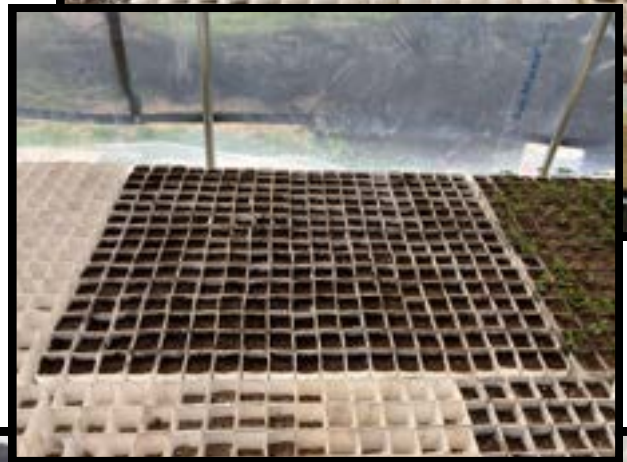
SOWING IN PLANT BANDS

Once taken out of the milk crates, pack the plant bands into the wooden frames. Every 3 rows or so, use a board to shore them up. This is important because you need them to be nice and snug by the time you get to the end of the frame.



Use a dibble to make an indentation in the soil. Then plant one seed per cell and cover. A mix of peat moss and 10% sand works great for covering. Especially for smaller seeds that will have trouble pushing through the dense soil mix.

Cover the seeds as evenly as possible and keep them moist until the seedlings start to sprout. Seedlings stay in plant bands for less than a year and they develop strong, vigorous root systems.



AIR PRUNING BEDS

Air pruning beds are a simple and effective way to grow trees with strong, healthy root systems. By using hardware cloth as the base, roots naturally prune themselves upon exposure to air, preventing them from circling and becoming rootbound. This technique is particularly beneficial for trees with long taproots, such as oaks and nut trees. They end up with more vigorous branching roots that emerge from the base of the plant.

BUILDING AN AIR PRUNING BED

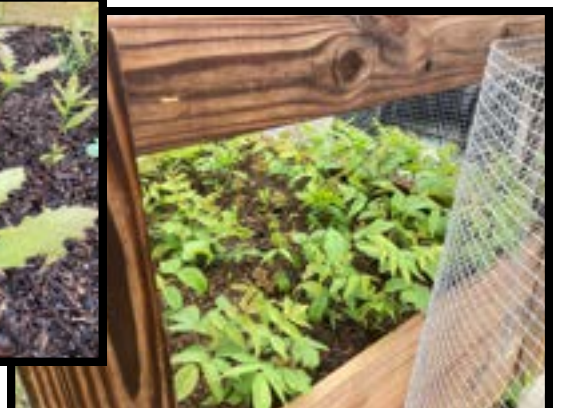


Construct a 4x8-foot frame (or adjust to fit your space) using rot-resistant wood. A depth of 12 inches is good. Attach hardware cloth to the bottom and fill with a well-draining soil mix. For bird and rodent protection, add removable panels framed with hardware cloth. Make sure the bed is elevated to allow air circulation and prevent waterlogging. Here is a [DIY air pruning bed design](#) someone made. This is just one example. Something similar can easily be built by retrofitting scrap wood and whatever materials are available.



SOWING SEEDS IN AN AIR PRUNING BED

Many tree species benefit from cold stratification, so these seeds can be direct sowed in air pruning beds in the winter. Care is simple. Just keep the beds watered, and as the seeds start to germinate, dig them up and transplant them to individual pots or plant them directly in the ground in the fall. As soon as they're planted, the seedlings' dormant root tips will be ready to grow out in different directions and make for a strong tree.



SEED BEDS

In-ground seed beds that have soil on the bottom rather than hardware cloth allow seeds to grow in a protected setting and germinate at their own pace. This works well for plants that do not have large taproots (like mexican plum). They are also helpful for seeds that don't have reliable germination, have questionable viability, or tricky ones that need to cycle between cold and warm stratification (for example yaupon, possumhaw holly, wafer ash). Planting this way allows the seeds to grow in a protected setting and germinate at their own pace. Then once they germinate, they can be pricked out and planted into individual containers.

Creating a seed bed can be as simple as amending an in-ground garden bed with loose, well-draining soil and protecting the area from rodents. Or it can be a more structured setup with covers and open and close.



CONSIDERATIONS

TIMING

When the goal is high-capacity tree cultivation for reforestation efforts, the most efficient approach is for seedlings to remain in containers less than a year. The prepared seeds are sown in the spring, grown through the summer, and the seedlings are planted in the ground by fall. This seasonal approach aligns with natural cycles, reducing the need for a greenhouse. However, given the unpredictability of the weather, a greenhouse can significantly improve success rates.

In some cases, repotting young seedlings into 1-gallon containers and growing them into larger trees is preferable. Larger trees have a higher market value and tend to be more resilient, reducing transplant shock and increasing their chances of acclimating to temperature extremes.



MICROCLIMATES

Not all trees have the same needs, and understanding the microclimates in your space will help you optimize growing conditions for the species you're cultivating.

When setting up your nursery, it's helpful to **observe the sun's movement** through your space throughout the day. Also note seasonal changes, as shadows from buildings, fences, or trees may limit light at certain times. If you aren't yet intimately familiar with your site, there are free apps that will help you map the sun's movement through your space at different dates of the year. Sufficient sun is important for growing healthy, high-quality trees with strong roots. A site with at least 6–8 hours of full sun daily is optimal.

Understanding wind patterns is equally important. Strong or persistent winds can dry out or even uproot delicate seedlings. In exposed locations, creating windbreaks can help buffer young plants from harsh conditions and create a more stable growing environment.



CONSIDERATIONS

WATERING

A reliable irrigation system is essential, ranging from a simple hose with a sprayer to a fully automated system with misters and timers. The best setup depends on your site and the scale of your operation. While rainwater is the ideal source, it may not always be available. If using hard water, such as well water, an acid treatment system may be necessary to prevent mineral buildup that can affect plant health.



PROTECTION FROM PESTS & WILDLIFE

Safeguarding seedlings from pests and wildlife is crucial. Physical barriers like fencing, netting, or covers made from hardware cloth can help. Encouraging beneficial predators can help keep pest populations in check and create a more balanced ecosystem. Additionally, using organic pest control methods can provide effective protection without harming pollinators or beneficial insects.



CONSIDERATIONS



SHADING

Some shade, especially during the intense summer months, helps prevent heat stress. This can be achieved by strategically placing structures, taller plants, or shade cloths to create a cooler environment. A 40% shade cloth is often what is used.



FROST PROTECTION

Sudden temperature drops can be damaging, so having frost protection measures in place—such as row covers, frost cloths, or greenhouse structures—can help shield young trees from cold stress.

