

[optional cover letter]

Re: Texas Forestry Association Tree Planting Guidelines

Enclosed is a copy of the Texas Forestry Association Voluntary Planting Guidelines for Pine Seedlings in Texas compiled by a group of forestry experts for the purpose of increasing survival of planted seedlings. These guidelines are being furnished to you for your use and considerations as you see fit in fulfilling your obligations under your contract with (Name of Landowner) dated (Date of Contract).

You are engaged as an independent contractor and are to use your discretion and judgement in determining the techniques of planting, providing all necessary tools and supervision of planters and otherwise having control and right to control your workers. Ultimately, your compliance with the contract will be solely judged on the terms and conditions of the contract itself.

Sincerely,

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**Tree Planting Guidelines**  
**10/30/2000**

**Texas Forestry Association**

**VOLUNTARY PLANTING GUIDELINES FOR PINE SEEDLINGS IN TEXAS**

**PREFACE**

Planting a new forest is a very important phase of forest management. Survival, height growth, and volume production of a new forest are directly affected by seedling care before and during planting.

Texas Forestry Association's Voluntary Planting Guidelines for Pine Seedlings in Texas are a suggested reference source for use by landowners and tree planting contractors in the Southeastern United States. The Guidelines should be considered as an effective and practical set of directions for planting pine seedlings in most areas of the Western Gulf Coast. The stated planting suggestions are generally applicable throughout the South.

**GUIDELINES**

**Seedling Pick Up at the Nursery**

1. Schedule seedling pick up to minimize time between nursery and field planting and to take advantage of cool, moist weather conditions. Getting seedlings back into the ground quickly is very critical, particularly early and late in the season.
2. Check bags and bales for the following signs of poor quality:
  - a) Dry roots
  - b) Swelled or burst buds
  - c) Mold on needles or stems
  - d) Sour smell
  - e) Lifting damage
  - f) Fusiform rust galls or other signs of disease

In the deep south climate, b) and c) are not uncommon, especially for early- or late-lifted seedlings from the most southerly nurseries. Such seedlings should be planted quickly within a few days of lifting, not thrown away.

3. Check for ripped, crushed, or damaged bags/bales. Torn bags are to be repaired with tape immediately. Seedlings are to be handled carefully and not thrown or stepped on.

### Transportation from the Nursery to Local Storage

1. Seedlings should be refrigerated at 34° - 38° F during long distance transport. For short distances seedlings should be held inside an insulated box or covered with reflective tarp.
2. Ensure air circulation around the bags/bales through proper loading. Use racks, pallets, and/or other spacers.
3. Secure bags/bales in the cargo space to prevent shifting or bouncing when traveling on bumpy roads. Heavy objects, such as planting tools and equipment, should not be stacked on seedlings.
4. Seedlings should not be transported in the same cargo space with, or space contaminated with, diesel fuel, gasoline, any petroleum product, pesticides, or any substance toxic to plants.
5. If the seedlings are transported in a truck bed, protect the seedling bags/boxes/bundles from direct contact with the bed to prevent overheating.
6. Cover seedlings with a reflective tarp if carried in an open truck or trailer. Ensure air circulation when covering seedlings with tarp.
7. Do not allow seedlings to freeze or overheat. Internal package temperature should be kept between 35° - 45° F.

### Local Storage

1. For storage duration of more than 48 hours, seedlings should be refrigerated at a temperature of 34° - 38° F.
2. Unload the vehicle quickly and carefully. For short-term, field seedlings must be loosely covered WITH A HEAT REFLECTING TARP at all times to protect them from wind and sun.
3. Plant the seedlings as soon as possible. Keep temporary storage time at a minimum. CHECK WITH THE NURSERY TO DETERMINE ACCEPTABLE STORAGE LIMITS.
4. Ensure that seedlings with the earliest lifting dates are planted first.
5. Specific protection for seedlings during short term field storage (less than 48 hours) includes:
  - a) Do not allow seedlings to freeze or overheat. Keep internal bag temperature between 35° and 45° F.

- b) Place seedlings by the north side of a large structure that receives no direct sunlight, or under the canopy of very dense foliage.
- c) Cover seedlings with a reflective tarp.
- d) Check bags/bales for rodent damage frequently and repair rips and tears immediately.
- e) Never stack bags/bales more than 2 high without spacers.
- f) Do not open sealed bags to water seedlings.
- g) Bales should be watered once per week.

### Transporting to the Field

1. Take only as many seedlings to the field as you intend to plant that day.
2. Handle bags/bales gently, and take precautions to minimize bouncing and sliding around in the cargo space. Under no circumstances are seedlings to be used for seats or roughly handled.
3. Seedlings should not be transported in the same cargo space with, or space contaminated with, diesel fuel, gasoline, any petroleum product, pesticides, or any substance toxic to plants.
4. Make sure you have everything required to protect seedlings (water, reflective tarp, etc.).
5. Never stack bags/bales over 2 high without spacers.
6. Cover seedlings with a reflective tarp if carried in an open truck or trailer. Ensure air circulation when covering seedlings with tarp. Do not transport seedlings in an enclosed space with passengers. If the seedlings are transported in a truck bed, protect the seedling bags/boxes/bundles from direct contact with the bed to prevent overheating.

### Seedling Protection at the Planting Site

1. Use open bags/bales/boxes before opening new boxes.
2. Never place anything heavy on seedlings or allow anyone to sit or stand on bags or bales.
3. Park seedling transportation vehicle in the shade. Seedlings may be stored in timbered areas adjacent to the planting site for better protection. The heat reflective tarp must remain over the seedlings at all times.

4. Do not stack over 2 high without spacers.
5. If an open, uninsulated vehicle is used to transport seedlings, and no shade is available at the planting site, remove the seedlings from the cargo area, place them in the shade of the vehicle, and loosely cover them with the protective tarp. Remember that shade moves during the day.
6. Open only one bag or bale at a time, then close tightly to prevent moisture loss from the remaining seedlings. Once removed from the bag/bale, seedlings must be placed in a planting bag or container immediately.
7. DO NOT individually separate roots in seedling bundles, so that root damage (breaking and stripping) will be minimized during planting. Direct exposure of seedling roots to air after removal from bag/bale should be kept to an absolute minimum.
8. Keep partially empty bags or bales in a covered, cool location.
9. Seedlings from opened bags/bales must be planted the day the bags/bales are opened.
10. Remove all empty bags/bales and other litter from the site.

### Hand Planting

1. Plant when soil conditions are moist but not excessively wet or frozen. Do not plant when the surface is frozen to a depth of ¼ inch or more, or when a significant freeze event is imminent. Planting when air temperatures exceed 80° F is not recommended.
2. Seedlings must be placed and kept in containers so that roots are well protected from dry, circulating air. The roots of the seedlings must be kept moist. To provide root protection within the containers, place wet peat moss, sawdust, burlap, or a small amount of water in the container with the seedlings. If roots are not coated with water gel or clay slurry, dip them in water or a slurry for one minute before placing them in the planting containers.
3. Use good judgement in distributing seedlings to planters. Do not provide planters with more seedlings than can be planted in one hour (warm, windy, dry day) to two hours (warm, calm, humid day).
4. Do not pack seedlings in containers tightly; keep them loose for easy removal and to minimize damage to stems and small roots.
5. Use a planting tool that is best suited to the seedling, roots and the site. Minimum specifications for planting bare root seedlings are a tool with a blade width of 5” and a blade length of 10 inches.

6. DO NOT field-prune roots.
7. DO NOT hit or shake seedlings in an effort to dislodge excess soil.
8. Seedlings should be pulled gently from planting containers to avoid root stripping.
9. Remove seedlings from the planting container one at a time and only after the planting hole is prepared.
10. Seedlings less than 1/8 inch in diameter at the root collar, with tops less than 4 inches in length, or roots less than 3 inches in length should not be planted. Seedlings that are forked at ground line, diseased or damaged, should not be planted.
11. The planting hole should be deep and wide enough for roots to fall straight down. Lateral roots should be placed in a more or less natural position. No major lateral roots (under 8 inches in length) exposed.
12. Keep the seedlings vertical, with no more than a 20° lean.
13. The taproot must be planted straight and vertical. J- or L-rooting of the taproot is not acceptable.
14. Maintain specified seedling spacing.
15. No seedlings should be planted in pockets of organic matter such as root balls of pushed-over trees, or in standing water or holes.
16. Plant pine seedlings so that the root collar is at least two inches below the packed soil surface.
17. Make sure that soil is gently but firmly packed around the root system to avoid air pockets as the hole is filled. Soil must be packed enough so that needles pull off the seedling rather than the seedling coming out of the ground when two or three needles are pulled. When lightly tugged, the seedling stem should not move in the soil. Do not make boot heel impressions closer than 2 inches to seedling, nor deeper than 2 inches in the soil.

### Machine Planting

1. Plant when the soil is moist but not excessively wet or frozen. Do not plant when the surface is frozen to a depth of ¼ inches or more, or when a significant freeze event is imminent. Planting when air temperatures exceed 80° F is not recommended.
2. Seedlings must be kept in seedling bins on the planting machine, so that roots are well protected from dry, circulating air. The roots of seedlings must be kept moist. If roots have

not been coated with water gel or clay slurry, dip them in water or a slurry for one minute before placing in planter seedling bins.

3. Do not carry seedling packages on the tractor or on top of the planting machine.
4. Maintain proper adjustment of the planting machine.
  - a) Adjust planter to open planting trench to maximum depth (a minimum of 10 inches).
  - b) Adjust packing wheels to completely close planting trench from top to bottom.
5. Seedlings less than 1/8 inch in diameter at the root collar, with tops less than 4 inches in length, or with roots less than 3 inches in length should not be planted.
6. Plant seedlings straight and with root collar at least two inches below packed soil surface.
7. DO NOT L-root, J-root or drag roots while planting.
8. Maintain specified seedling spacing.
9. Plant along contours. Do not plant up and down slopes of greater than 5%.
10. Be sure the tractor is not leaking oil or hydraulic fluid.
11. The soil must be packed well around the roots of the seedlings so that the seedling stem does not move in the soil when lightly tugged.
12. All seedlings in the seedling bins should be planted within two hours from the time removed from bag/bale.

#### Planting Quality Assurance

1. The planting contractor as well as the landowner should install planting quality inspection plots in sufficient quantity across the planting block to assure uniform and consistent compliance to all planting specifications.
2. Row and drill spacing (tree density) should be verified at each plot either by direct measurement or by plot tally.
3. The number of trees inspected at each plot should be proportionate to the planting crew size (15-25%). No more than one tree should be sampled from each row. (If 5 trees represent 20% of the crew size, one tree would be selected from each of 5 rows.)
4. The selected tree should be graded as “properly” or “improperly” planted if any deviation from the planting guidelines is noted.

5. First check compliance with aboveground specifications by observing for lean, tree damage, exposed lateral roots, etc.
6. Next, carefully dig the tree so as to remove a block of soil with the seedling. Carefully remove the soil from around the roots to check for J- or L-rooting, natural positioning of lateral roots, evidence of lateral root stripping, depth of planting, etc.
7. Payment schedules tied to these quality assessments should be negotiated and entered into the body of the contract if a contractor is hired to plant the tract(s).