Shipping

The ideal system for handling seedlings includes cold storage at the nursery, refrigerated trucks for shipping, and cold storage at the district or distribution center. Many large forestry organizations in the South have such a system. Unfortunately most small, nonindustrial landowners do not have access to these facilities. For this reason, many State nurseries pack seedlings in bales rather than closed containers. Seedlings in bales are able to dissipate heat better than those in bags or boxes.

When several thousand seedlings must be shipped on an uncovered truck, the risk of damage is high. In warm, sunny weather, heat can build up inside seedling packages very rapidly. Packages should be loosely covered with a tarp, and spacers should be placed between the packages to permit air flow. The heat of respiration combined with solar heating may cause internal package temperatures to rapidly reach the lethal temperature of 118° F. However, seedling quality may deteriorate at temperatures as low as 50° F.

Do:

- **Stack seedling packages no more than two deep and use spacers to provide air flow between packages.**
- **Use covers over packages to prevent desiccation, freezing, and overheating.**
- **Haul seedlings at night to avoid high day temperatures.**
- **Inspect covers, tarps, and refrigeration units during the trip.**

Do Not:

- **Park trucks in the sun during coffee breaks, lunch stops, or pit stops.**
- **Leave seedlings on the truck overnight if there is danger of freezing temperatures.**
- **Throw, crush, or physically damage the seedlings.**

PHOTO: CLARK LANTZ

Perishable Seedlings

The following seedlings are extremely perishable and should be planted immediately:

- longleaf pine seedlings
- sand pine seedlings
- seedlings with less than 400 chilling hours
- seed sources from the Gulf and South Atlantic Coasts
- seedlings grown in nurseries near the Gulf or South Atlantic Coasts
- seedlings lifted late in the season (particularly if these have started height growth)

If storage is unavoidable, it should be as short as possible. Every additional day of storage will reduce the survival and growth potential of these seedlings!

Planters often delay longleaf planting because it is difficult and time consuming and usually is a small fraction of the total workload. Storing longleaf seedlings is an invitation to disaster! The planting of longleaf stock must be given priority over other species.

Delivery of Seedlings

The planting season in the South begins in December and ends between February and April, depending on location. The optimum period in the Gulf Coast States is from mid-December to mid-February. Farther North, the planting season is often extended into March and April. Weather conditions often force an extension of the planting season causing problems with proper seedling storage as the weather becomes warmer.

PLAN AHEAD

Locate a cold storage unit with space available during the time o f planting.

When you accept delivery of your seedlings from the nursery, you should be sure that they are protected from direct sun, high temperatures, and freezing temperatures. If you pick up the seedlings from the nursery or distribution point, provide cool, shaded conditions for transport. Arrange to pick up seedlings in late afternoon and schedule long-distance hauling at night to prevent heat buildup from the sun.

If an open truck or trailer is used for shipping, a tarp can be used to shade the seedlings, but be sure to allow for ventilation under the tarp and around the seedlings to prevent heat buildup. To prevent water loss from open-end bales, avoid exposing the bales to wind or moving air during transport. Avoid stacking bales or bags of seedlings over two high without providing space between packages for air circulation and support to prevent crushing.

If cold storage cannot be provided at the planting site, only enough seedlings for 1 day of planting should be picked up at the cold storage unit or distribution center. On-site storage for a day can be improvised with a trailer parked in the shade or a tarp stretched between several trees. Heat-reflective "space-tarps" can be utilized in the field to protect seedlings from heat and drying. Remember: However, the shaded area moves during the day. Seedlings left in the shade in the morning are likely to be in direct sun in the afternoon.

Portable seedling coolers are rented by the South Carolina Forestry Commission.

Where large, remote tracts are planted, refrigerated trailers are often parked on the tract, cooled with a self-contained refrigeration system. Some refrigeration units can be operated with a portable generator. There are also slip-on "iceboxes" that can be carried on 1 /2- or 3/4-ton pickup trucks. The S.C. Forestry Commission will rent portable seedling coolers that can be operated on 110 volts or with a self-contained generator.

REMEMBER

Planting dead seedlings is a waste of time, land, and money.