

## PLANTING SITE PREPARATION

One of the most critical factors in survival of dryland tree and shrub planting in New Mexico is site preparation. This will accomplish three objectives: 1) loosening of the root zone for easier root penetration; 2) loosening of the surface soil for improved water infiltration and reduced evaporation; 3) reduction of competition from weeds.

Prepare the land well ahead of planting. The windbreak plots should lie fallow at least one year before planting. The planting site should be worked enough during the summer to keep the surface soil loose.

Where rainfall is adequate and in irrigated areas, deep fall plowing is most beneficial on loam or silty soils.

If planting is to be done on sandy or fine to medium textured soils, which are subject to wind erosion, plant strips of tall annual crops such as corn, sorghum, or millet. Plant one or two rows the year before you plant the trees and keep them cultivated. These strips protect the soil against blowing and catch snow during the winter, thus adding moisture for the tree seedlings.

## PLANTING THE WINDBREAK

### Care of Planting Stock

The quality of the planting stock and the care given to it have much to do with a successful windbreak. Special attention will improve the percentage of trees that will survive and the vigor of those that do live.

### BAREROOT STOCK

The most important consideration in handling nursery stock, is to keep the seedlings cool and the roots moist at all times. The trees must be kept moist until field planted. **DO NOT LET THEM DRY!** When seedlings are received from the nursery, bundles should be opened and the trees planted. If the trees cannot be planted immediately, they should be refrigerated or stored in a cool area. Stock may be stored in refrigeration with the bundles unopened. Temperatures should not be above 38 degrees F nor below 33 degrees F. Humidity should be 90 percent. Each bundle of trees should be watered once a week. **DO NOT** store seedlings any longer than necessary. Under best refrigeration conditions, three weeks to a month should be maximum.

Another method of temporary storage for seedlings is "heeling in". This is done by digging a V-shaped trench deep enough to receive the full length of the roots. Spread the trees out along the trench and cover the roots with moist soil, then water. Dig the trench where the trees will receive at least partial shade wherever possible.

## CONTAINERIZED STOCK

Two of the major causes of bareroot planting failure in the Southwest are poor physical condition of seedlings, stemming from improper refrigeration and lifting.

Containerized seedlings minimize the impact of these factors on survival. The container method permits seedlings to begin and maintain rapid root growth in a near natural condition. Seedlings are able to make better use of soil moisture and shock from transplant is reduced. Containers also protect seedlings from mishandling. If seedlings cannot be planted immediately, store in a shaded area and keep moist. Water about every two days. **NEVER** use the "heeling-in" method or store them in the refrigerator.

### When to Plant

Most New Mexico tree planting is done in the spring (mid-March to mid-May). The main consideration is to plant just about the last frost and as soon as the top 18" of soil has thawed out. Fall planting may be considered only when there is no danger of frost heaving at the site.

Use of containerized stock will enable the landowner to delay planting until New Mexico's summer rains arrive. Containerized seedlings should be planted prior to mid-July in the northern half of the state to allow for sufficient root development before winter. Fall planting as late as October have been successful in the lower one-third of the New Mexico.



**FIG. 9** Steps for heeling-in your trees. 1. Dig V-shaped trench in a moist, shady place. 2. Spread trees in trench out evenly, 3 to 4 trees thick. 3. Fill in loose soil and water well. 4. Complete filling trench with soil and press down firmly.



## Planting the Trees

1. Bareroot seedlings: The period of exposure between removing planting stock from the bundles, transplant beds, or where they are heeled-in; and placement in the hole should be as short as possible. Take only enough trees so that they can be kept moist. Carry the roots in a box, bucket or tray. This will make it possible to cover roots with wet peat moss, sawdust, sloppy mud or moist burlap. Take out one seedling at a time for planting. **Dry roots may mean dead trees.**

2. Containerized seedlings may be watered prior to extraction to facilitate separation of root plug and container. The planting hole should be dug slightly deeper than the length of the plug. Dry surface soil should be removed before the hole is prepared. Satisfactory planting tools include: power or hand auger, shovel, mattock or planting bar.

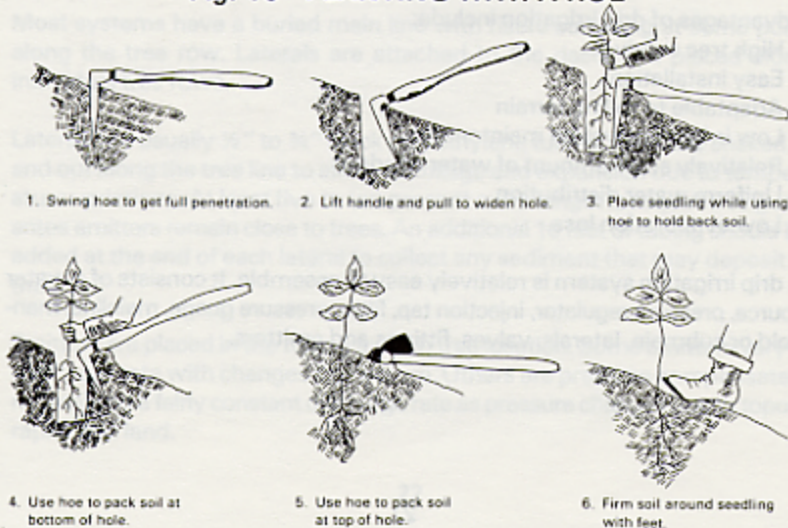
3. Place seedling in hole at the depth it grew in the nursery. This depth is indicated on stem by the ground line, which is usually about one-half to one inch below the first needles. It is better to plant a little too deep than too shallow, but never deep enough to bury any foliage.

4. **Let the roots hang naturally without turning or twisting.**

5. Hold the tree in this position with one hand, then fill in the soil, (about a third at a time), and tamp firmly with the other hand until the hole is filled. **Firm tamping is necessary to avoid air pockets.**

6. Use only moist mineral soil to fill in the hole. Do not mix soil with snow, grass, sticks, rocks etc. The roots must be in direct contact with the soil.

Fig. 10 - PLANTING WITH A HOE



## Planting the Trees

1. Bareroot seedlings: The period of exposure between removing planting stock from the bundles, transplant beds, or where they are heeled-in; and placement in the hole should be as short as possible. Take only enough trees so that they can be kept moist. Carry the roots in a box, bucket or tray. This will make it possible to cover roots with wet peat moss, sawdust, sloppy mud or moist burlap. Take out one seedling at a time for planting. **Dry roots may mean dead trees.**

2. Containerized seedlings may be watered prior to extraction to facilitate separation of root plug and container. The planting hole should be dug slightly deeper than the length of the plug. Dry surface soil should be removed before the hole is prepared. Satisfactory planting tools include: power or hand auger, shovel, mattock or planting bar.

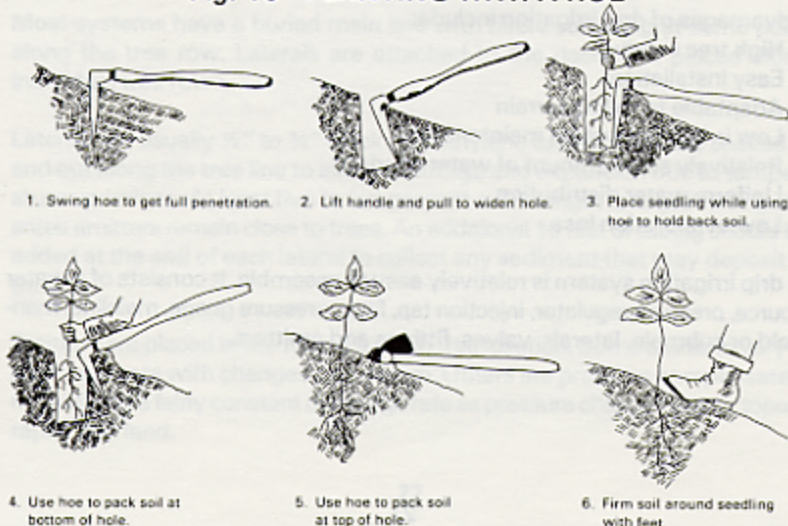
3. Place seedling in hole at the depth it grew in the nursery. This depth is indicated on stem by the ground line, which is usually about one-half to one inch below the first needles. It is better to plant a little too deep than too shallow, but never deep enough to bury any foliage.

4. **Let the roots hang naturally without turning or twisting.**

5. Hold the tree in this position with one hand, then fill in the soil, (about a third at a time), and tamp firmly with the other hand until the hole is filled. **Firm tamping is necessary to avoid air pockets.**

6. Use only moist mineral soil to fill in the hole. Do not mix soil with snow, grass, sticks, rocks etc. The roots must be in direct contact with the soil.

Fig. 10 - PLANTING WITH A HOE





7. After the hole is filled, tamp again with your hand or handle of the planting tool. Tamp firmly.

8. Cover the ground around the tree with a thin layer of loose soil as a mulch, or mulch with other material.

9. Water after planting to aid in packing the soil around the roots and to assure ample water for a start.

One-man power augers have become popular in recent years, and a simple unit can keep three to four people busy planting. Auger planting works best in loamy soils and can be difficult on sites with heavy clay, rocks or massive roots. Heavy litter or vegetation on the soil surface must be scalped away ahead of the auger or the soil from the planting hole is lost in surface debris.

Machine planting is practical only when soil conditions are favorable to adequate machine packing of the ground around the seedling root system. Heavy soils which are wet or sticky at planting time should be planted by one of the hand methods discussed. **Soil should be moist when seedlings are planted.**

## DRIP IRRIGATION

A strong commitment is required for successful windbreak planting in most of New Mexico where annual rainfall amounts range from 14 to 24 inches. Once the windbreak is planted it is essential that young trees receive adequate moisture. The best way to provide such moisture is by drip (trickle) irrigation.

Advantages of drip irrigation include:

- High tree survival
- Easy installation
- Adaptable to rolling terrain
- Low irrigation system maintenance
- Relatively small amount of water needed
- Uniform water distribution
- Low evaporation loss

A drip irrigation system is relatively easy to assemble. It consists of a water source, pressure regulator, injection tap, filter, pressure gauge, mainline, manifold or submain, laterals, valves, fittings and emitters.