

## LONGLEAF GRAFTING TECHNIQUES

Winton L. Slade 1/

The Stuart Orchard located on the Kisatchie National Forest near Alexandria, Louisiana has investigated three methods of grafting longleaf pine (*Pinus palustris*). The methods we have used are soft tissue grafts, grafts on potted understock, and grafts on understock planted in place in the orchard. Results obtained from grafting soft tissue and potted understock were not satisfactory for our purposes. Both of these methods gave only limited grafting success and poor early growth. The modified cleft graft used on understock planted in place is the method that will be described in this paper.

Production of understock suitable for grafting is our first consideration. One year old seedlings are planted in the orchard. These plants are hand weeded and sprayed for control of brown spot during the two to three years that are required for height growth to begin. When the shoots are from eight to twenty inches in length, the understock is ready to graft.

We collect scions between January 15 and February 15. Vigorous terminal buds are collected from the upper one-half of the crown. They should be at least six inches long. After being cut the scions are placed in polyethylene bags containing wet sphagnum moss. The bags, containing ten scions each, are placed in ice chests for transporting to the orchard. Polyethylene bottles of frozen water are placed in the bottom of the chests to keep the scions cool while in transit. The bags of scions are tagged inside and outside to prevent loss of identity. After arriving at the orchard, the scions are prepared for grafting and then stored at 36 degrees F. Preparation includes inspection to insure there is no insect damage, removing all needles, and dipping in a latex and water solution. We feel that this mixture of one part latex and eight parts water reduces loss of moisture while the scions are in storage.

At the Stuart Orchard, we like to graft between February 15 and March 15. These dates will vary from orchard to orchard. Materials needed for grafting are: sharp grafting knife, whetstone, pruning shears, rubber grafting strips, plastic grafting tape, and aluminum foil strips. Scions of only one clone are placed in an ice chest and given to an individual grafter for grafting. This permits close supervision and insures the identity of ramets. When the grafter reaches the desired understock, he selects a scion and then cuts about one inch from the end of the stem in order to expose fresh tissue. Understock terminal bud has needles removed from six to eight inches and then the cleft cut is made. Tapering cuts about five inches long are then made on opposite sides of the scion to produce a wedged section for insertion into the understock. As the scion is placed into the cleft, cambium layers of the scion and understock are carefully aligned on a single side. Alignment on just one side is usually necessary because frequently the understock bud is much larger than the scion.

---

1/ The author is Project Forester on the Stuart Seed Orchard, Kisatchie National Forest.

while the scion is held firmly in place, the graft is securely wrapped with rubber grafting strips. The plastic grafting tape is then applied to give the graft some protection and to prevent rain from flowing freely into the cleft. The aluminum foil strips are wrapped around the graft and bud. This reflects sunlight and prevents the scion from drying out before union with the understock has occurred.

We have found that post-grafting care is an important factor. This care includes: regular inspection of the foil wrapper, especially after periods of strong wind or heavy rain; periodic removal of the foil and plastic grafting tape to break off adventitious buds that form on the understock; and cutting the grafting tape off after union takes place. Our grafting of longleaf for 1970 was as follows:

<u>Geographic Source</u>	<u>Grafts Attempted</u>	<u>Grafts Surviving</u>	<u>% Take</u>
Texas	308	225	73.0
Louisiana	2135	1071	50.1

The better grafting take for the Texas source was attributed to the better quality scions received.