

USE OF CLAY SOLUTION IN SEEDLING PACKAGING

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One of the larger tree-planting firms of North Carolina has been using a clay suspension for dipping the roots of seedlings prior to planting. The results in improved survival have been great enough that this firm has continued its use for some five or more years. Use of the dip was developed as a safety measure for seedling roots, not as a cure-all for tree planting.

Before the past planting season, this firm requested that the State nursery dip the seedlings prior to packaging, thus eliminating the operation at the individual planting sites. It was agreed that the State would be reimbursed for the expense of this operation. Approximately 8 million seedlings were in this order.

The sand-free fire-brick or pipe clay used for dipping will remain in a water suspension very well. Consistency of the mixture should be such that it will flow readily and can be applied easily to all roots of a large handful of seedlings.

Both the type of clay and the consistency of the suspension are very important, since a uniform coating of all seedling roots is necessary without plastering the roots. Plastering of roots with a heavy muck might impede the movement of soil moisture to the plants and actually cause a reduction in survival. A suspension that is too watery, however, will not properly protect the seedlings in the seedling package, or during the planting season.

The effect of a free-flowing clay suspension on the roots of the seedlings is threefold: (1) It helps keep seedling roots moist and in excellent plantable condition for as long as 6 weeks under cold storage conditions, without moss layers between the seedlings. (2) It helps protect seedling roots from drying out during the planting operation and assists the planter in keeping the roots straight for planting. (3) The proper mixture will probably be of value to the seedling in holding moisture after planting.

Some form of heat is very helpful in getting the clay into suspension. We used a kerosene burner to heat the clay and water and mixed the suspension by hand (fig. 1). The suspension was mixed long enough ahead of dipping to allow adequate time for cooling. Once a solution had been made, light stirring would bring settled particles back into suspension.

Our seedlings were weighed and dipped 250 seedlings at a time (fig. 2). Each 250 was placed directly in the package. A light layer of moss surrounding the bundle was the only wetting agent other than the clay mixture. We have found that an absorbent paper fabric, Tufflex Fabric, can be used in place of the moss (fig. 3). This will have less tendency to wash the clay from the roots of the seedlings in contact with it. Wet moss will remove the clay from some of the outer layer of seedlings. After 6 weeks of storage water can be squeezed from the Tufflex Fabric, and the seedlings roots are in excellent condition.

This operation in 1960-61 cost approximately 18 cents per thousand in addition to our regular grading and packing costs. We were not prepared physically for an efficient operation. Some planned changes in our operation will reduce the cost somewhat.

It is anticipated that at least a part of our other orders will be prepared for shipping in this manner in 1961-62.



Figure 1.--Kerosene burners are used in mixing clay suspension. Cooling vat in foreground.



Figure 2.--250 seedlings being dipped into clay suspension. Count determined by weight.

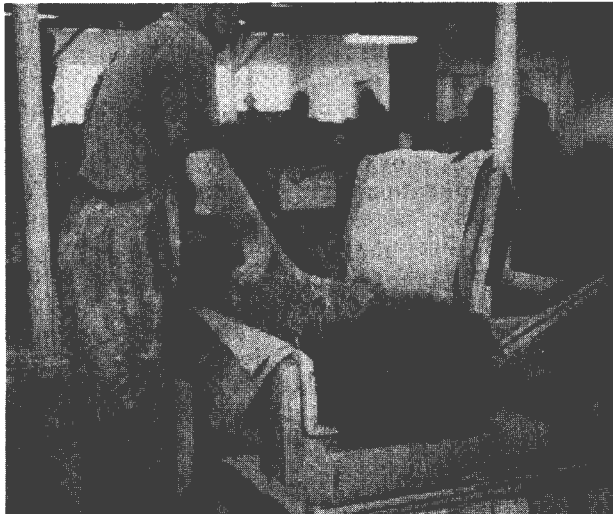


Figure 3.--Seedlings being packed in wirebound crate with Tufflex Fabric inner liner and regular seedling wrap outer liner. No moss is used in bales or crates.

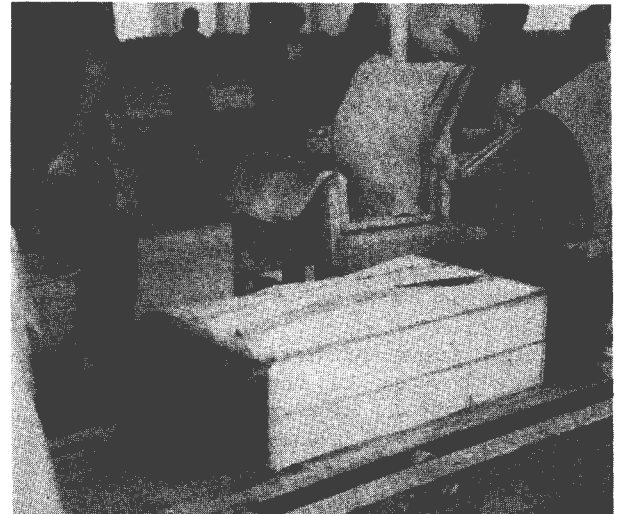


Figure 4.--Completed wirebound crate (see *Tree Planters' Notes* 45, Mar. 1961) in foreground and crate being packed in rear.