

NEW PACKAGING METHODS FOR FOREST TREE PLANTING STOCK
NORTH CAROLINA'S "MUDDING"

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The rumor reached me just before the first shipping season in which "mudding" was made our standard practice that all of our men were going to quit.

We are the first to admit that the "mudding" process is dirty, but we have felt since 1960 that the benefit to the trees more than offsets the inconvenience to the packers and handlers of the seedling bales. Work done by Dr. Chuck Davey, North Carolina State University, tends to bear this out.

Dr. Davey has been kind enough to appear on the program with me; so I will try to confine my remarks more to the mechanics of the bale which we use, and how we started using mud on our trees.

In 1960, Weyerhaeuser Company asked if we would undertake to dip their trees at the nursery. We agreed to do so on a cost basis. The operation for Weyerhaeuser was really a mess since we were forced to set up their operation in a cone barn.

But, after packing the trees in clay for Weyerhaeuser, we asked ourselves, "why not dip all trees?", since it obviously was worth quite a bit for Weyerhaeuser.

In 1961-62, Little River Nursery dipped all trees in clay except a few where moss-pack was requested. The package was very favorably accepted by all paper companies, and all but a few individuals. There was one Indian planting crew that washed the roots before planting them. Most people preferred the mudded packing. In fact, we are so completely sold on our package that in 1963-64, all North Carolina nurseries used this method.

Our first mudded packages were crated with a protective moss layer around the outside of the bale. This washed the mud from some of the roots, and we started looking for a better product to use as an absorbant inner wrap for the bale. The inner wrap absorbs the extra moisture from the dipped trees, and forms a moisture barrier around the seedling bale.

The first acceptable product located was developed as an asparagus wrap. This absorbant fabric was known as "Tufflex" and was manufactured by Wood Conversion Corporation. The "Tufflex" inner wrap was an excellent material but was very expensive, costing about \$26 per 20-inch x 300-foot roll.

We then worked with Barnhardt Manufacturing Company in the development of a cotton wrap which was very good for our purpose although it lacked strength qualities desirable in the clay packing.

In 1962, the Chicopee Paper Company underbid both Wood Conversion Company and Barnhardt on a fabric liner at about ,1';13 per roll. This fabric was not as absorbent as Tufflex or the cotton material, but we felt it was a satisfactory material. In 1963, Dan River Mills got the bid on a very satisfactory fabric liner called Riverlon. After losing the bid in 1963, Chicopee has improved the absorbancy of their product, and for our purpose, any of these materials are excellent liners for the mudded trees.

When we first started "mudding" trees, the clay that was used was dug in large chunks which required both heat and a good deal of labor to get into suspension. We now have found that by getting the clay early, we can dry it and run it through our haimiermill, making it into a powder, or we can buy powdered and bagged clay directly from a kaolin company not too far from Morganton. The bagged clay costs us \$20 per ton. Either clay is easily suspended in water for dipping the tree roots.

We feel that the effects of the clay suspension on the seedling roots is threefold: (1) it helps keep the seedling roots moist and in excellent planting condition for a longer period of time than does the conventional, moss pack. We have kept these dipped seedlings up to 6 months with a minimum of care; (2) in field planting, the protective clay layer will keep the roots from drying out even if the outside of the clay does become dry. The clay forms a virtual plastic coat over the rootlets, protecting them from sun and wind. The clay also gives the roots weight which tends to make the seedlings easier to plant by holding the roots straight; (3) we feel that the clay continues to protect the roots from drying out even after planting. We have had excellent reports on seedlings planted very late in extremely dry spring months. We feel that this clay dip was a factor in the success of such late plantations; (4) in the 4 years that the clay pack has been used, we have had no complaints about dry seedlings and have had no molded seedlings.

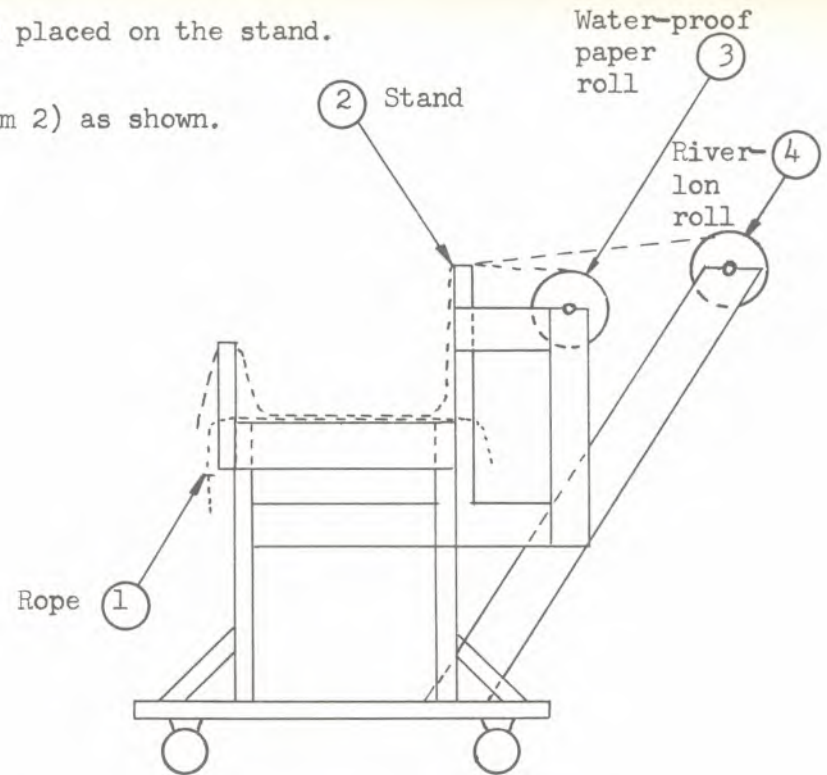
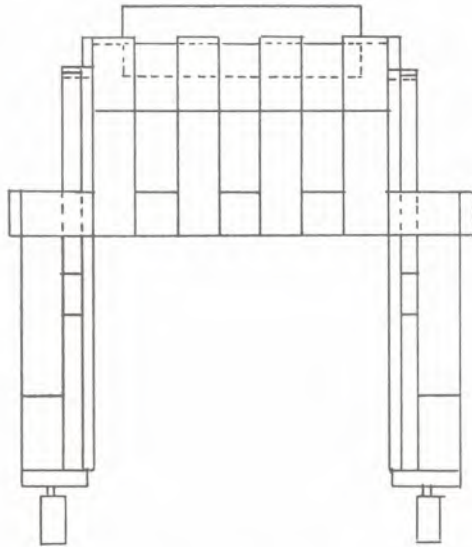
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1. Bale packed in March with no watering.
 2. Dales repacked in August.

Shipping procedure as developed by North Carolina Division of Forestry.

1. Seedlings enter shipping area in crates, workers take them from crates in lots of 250. (Scales are used, an average wt. of 250 seedlings is used to get lots of approximately 250).
2. These lots are then placed on a divided stand.
3. The roots are then dipped in a clay-water bath, and placed on the stand.

The steps used here are:

- A. Place a small rope (Item 1) over edge of stand (Item 2) as shown.



- B. Pull paper (Item 3) and Riverlon (Item 4) over stand as shown. Seedlings are then placed on stand (Step 3). Alternate positions are used for lots, with roots in the center and foliage to the outside. The paper and Riverlon is cut to length and wrapped around bale. The rope is then used to tie bale for handling.

4. The bales are then moved to a stand where they are strapped with metal bands, one on each end. The bales are then moved to a cold storage room to await shipment.