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Our planting program depends on $\underline{quality}$ $\underline{seedlings}$. Substandard quality not only causes immediate handling problems, but may jeopardize an entire plantation for years.

I have seen seedlings delivered from public, state, or private nurseries (bareroot, container, or transplants) to the field and have been called by the planting inspectors with the following problems:

- 1. Root length
 - a. Long system
 - b. Short system
 - c. Long laterals hung up
 - d. Erratic length
- 2. Mud balls
- 3. Culls (caliper or height too small)
- 4. Error in seedling count in bags.
- 5. J-roots
- 6. Wrong seedling lots shipped
- 7. Diseased seedlings
- 8. Damaged seedlings (stem tops)
- 9. Stressed seedlings (dry)
- 10. Frozen stock (not planned)

The last eight items may prevent a plantation from growing or getting planted or from surviving. This means that an area may not produce wood for the future, at least not the amount that it should produce. However, I am going to talk about the first two items only as they constitute 95 percent of our problem.

I have opened bags of seedlings out on a landing with 20 planters ready to go planting only to find roots so long that an hour was required to prune them before anyone could begin to work. This was an hour for each time bags were filled. I recently reviewed a claim for long roots that was paid at 8 percent of the bid price. This is \$16.00 per thousand seedlings. The contractor then asked "how do you expect me to plant the seedlings correctly when you cannot even prune the roots correctly." The claim only includes the planting cost, not the cost of additional root pruning.

I have lifted a box of 500 seedlings that weighed 150 pounds. There was so much mud on the roots they were impossible to plant without severe root damage. The contractors submitted claims for handling and planting these seedlings. Contract compliance inspection is difficult or impossible with such seedlings.

The big factor is extra stress on the inspector when seedlings are shipped in this manner. The contractor really intimidates the inspector. It is at this time the planting inspectors would give anything to have the nursery manager out planting the seedlings or facing the planting contractor. I think it would be good training for every nursery manager to face the wrath of a planting contractor when the seedlings are shipped in this condition. The field personnel do not have the facilities or the time to correct these problems. The place to correct these problems is at the nursery. Root length problems can be corrected by care in separation and in placing seedlings on the grading belt.

We contract more than 95 percent of our planting. This means when the field people receive seedlings with long roots or mud balls, the planting contractor can submit a claim and someone has to pay it. Most of the COR's execute a contract modification and increase the price per acre rather than wait for a claim. The end result is the same, there is an increase in the cost of planting.

I know all nurseries have improved the quality of their seedlings. Some nurseries have an individual on the grading and packing tables and other nurseries have added a quality control person at the end of each belt. This tends to solve the long root problems.

Several nurseries have precold storage for seedlings so a larger number can be lifted when ground conditions are right for lifting. This helps to eliminate mud balls. However, every year I get too many calls from the field that nursery quality control has slipped. We are all dependent on each other and the seedling is dependent on us all doing the best job we know how. The seedling needs tender loving care from seed to planting. We recognize you all as professional nursery managers. I ask you all to continue to welcome the field planters to your nurseries, continue to go to the field to see where your seedlings are planted, and continue to improve the quality of your shipped product. If you find a problem with the stock, call the field people and tell them so a mutual understanding of the problem and a solution can be worked out before the seedlings are ready to be placed in the tree planters bag.

I sincerely compliment you all for the stock you have shipped, we have planted over 2 1/2 million acres. We have a lot of field success thanks to your seedlings.