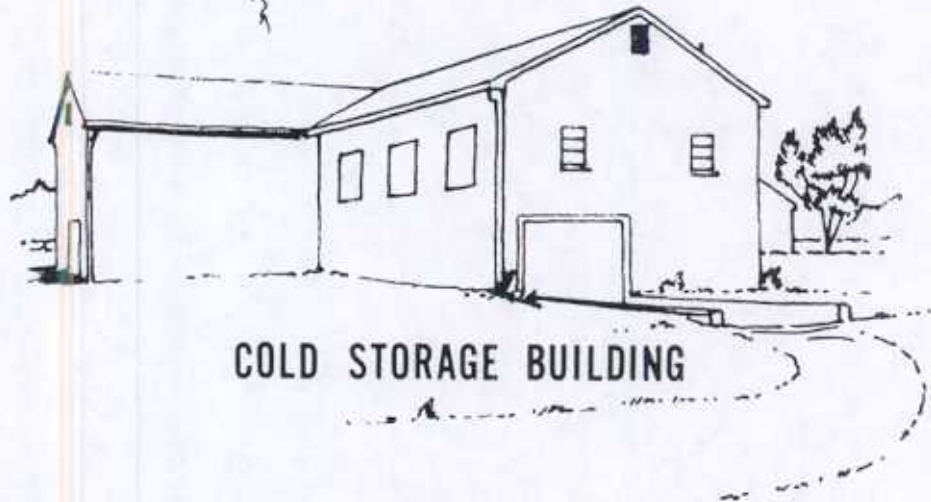
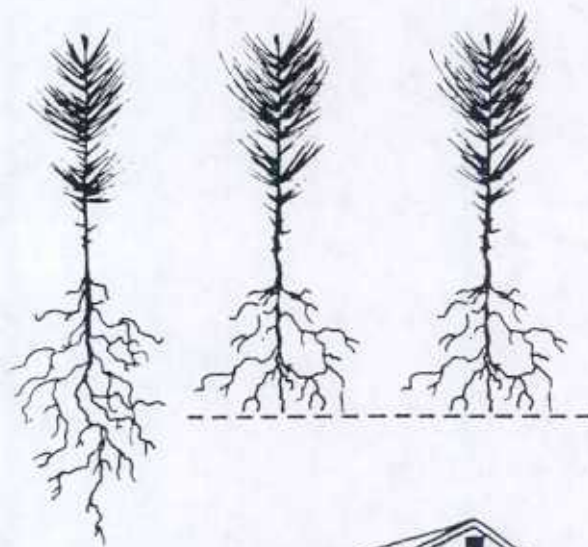
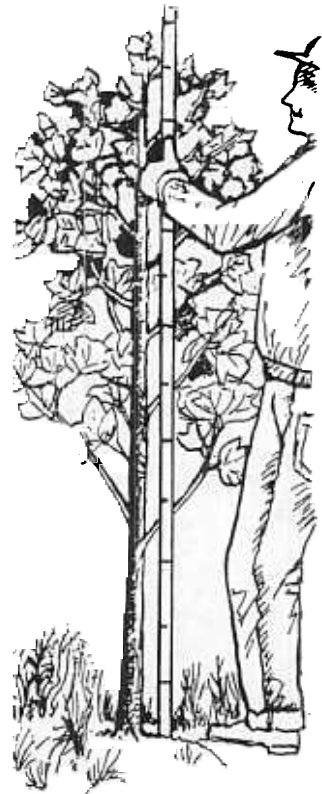


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# SURVIVAL OF ROOT PRUNED LOBLOLLY AFTER LONG-TERM STORAGE



Virginia Division of Forestry

Department of Conservation and Economic Development



SURVIVAL OF ROOT PRUNED LOBLOLLY PINE SEEDLINGS  
AFTER LONG-TERM COLD STORAGE

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ABSTRACT

Loblolly pine seedlings, both root-pruned and not root-pruned, were kept in cold storage for up to 99 days before planting. Root pruned seedlings survived and grew as well as unpruned seedlings.

INTRODUCTION

We questioned whether loblolly pine seedlings that had been root-pruned would keep as well in cold storage as unpruned seedlings. For one thing, root-pruned seedlings will not hold as much clay (there is less root mass) so that packages may dry out faster. Secondly, pruning off some of the roots may remove enough stored food to effect storage and survival adversely.

PROCEDURE

On December 5, 1979, 12 standard, 1,000 seedling packages were prepared. The roots were operationally pruned to an average length of 5 to 6 inches for six of the packages, and left unpruned for the other six packages. Seedlings were planted on three dates: December 12 (7 days storage), February 12 (71 days storage), and March 14 (99 days storage). On each date we removed four packages from cold storage, two that had been root-pruned and two that had not. Enough seedlings were taken from each package to plant three 20 seedling rows.

To obtain the seedlings for each 20 seedling row, we opened the twenty 50-seedling bundles in each package and randomly took one seedling from each. We did this three times from each package to obtain the seedlings for the three replications. This is a good procedure for studies that involve long-term storage, because the 50-seedling bundles around the outside edges of a package may dry more rapidly than the 50-seedling bundles toward the center.

When we opened the packages on February 14 and March 14, after 71 and 99 days storage respectively, the clay was still damp on the roots and we could see no difference between root-pruned and unpruned seedlings. However, there was a slight amount of mold on some of the seedlings in all four packages on March 14. The seedlings still seemed to be in good condition, and we "judged" that the mold was not serious.

## RESULTS AND CONCLUSIONS

Average survival and height after three growing seasons is summarized in Table 1. Root-pruning did not reduce the capacity of seedlings to withstand storage. In fact, the root-pruned seedlings survived slightly better than the unpruned seedlings on all three planting dates, but the differences were not statistically significant. Survival after 99 days of storage is outstanding for both pruned and unpruned seedlings, especially considering the extremely dry summer we had in 1980. From this study, it appears as if we do not have to be concerned about root-pruning reducing the capacity of loblolly pine seedlings to withstand storage.

Table 1. Average survival and height after three seasons.

	<u>Days of Storage and Planting Dates</u>			
	<u>7 Days</u> <u>Dec. 12</u>	<u>71 Days</u> <u>Feb. 14</u>	<u>99 Days</u> <u>March 14</u>	<u>Means</u>
	<u>Survival Percent</u>			
Pruned	97.5	92.5	90.8	93.6
Not Pruned	94.0	90.0	89.8	91.3
Means	95.8	91.2	90.3	
	<u>Height in Feet</u>			
Pruned	4.84	4.84	4.66	4.78
Not Pruned	4.95	4.61	4.81	4.79
Means	4.89	4.72	4.73	