

DEVELOPMENTS IN NURSERY EQUIPMENT

Gerald W. Black 1/

Abstract.--The use of an eight-row seedling harvester can effect large labor savings. The machine has been very successful in lifting coniferous species.

The machine to be discussed is the J. E. Love Seedling Lifter. The original design of this machine came about from inputs and ideas of other Nurserymen in various states. Weyerhaeuser Company then built two prototypes. Therefore, the J. E. Love Company began manufacturing this machine using this design.

The Love Tree Seedling Harvester is an eight-row lifter using sixteen five strand powerband pick-up belts with molded backing each on six inch centers. The belts are shaped for increased lift without excessive pressure. This machine has an oscillating undercutting blade that is full bed width and has infinite depth adjustment through three settings. The gradual contact, adjustable speed, wire form oscillating beaters are used for root cleaning. A tractor PTO mounted pump furnishes power to the 100% hydraulic motor driven harvester.

The handling system described in this paper was evolved at the Weyerhaeuser North Carolina Nursery and Equipment Development Shop. The handling system trailer has a table for the seedlings to fall on as they are released from the pick-up belts. A conveyor then carries the seedlings to the sheet holders where the seedlings are placed in the canvas sheets. The filled sheets are placed on another conveyor which carries them to the hauling unit running beside the lifter.

The harvester can travel at a forward speed of 10 to 25 feet per minute. Some limiting factors affecting the forward speed are the soil conditions for soil root removal, seedling volume at the seedling transfer station, and the seedling bed density.

The production is excellent. At the North Carolina Nursery, the production rate is 100,000+ seedlings per hour.

The mechanization of the seedling lifter process can effect large labor savings. As a result in using this harvester and trailer only 7 people are required to lift and transport seedlings to the packing room. The lifter can pay for itself very rapidly by reducing manpower. Assuming a labor rate of \$3.50 per hour, a lifter costing \$35,000, with a crew reduction of 25 people, could be completely amortized in 60 days.

This lifter is not for use with all species. It has been very successful in lifting coniferous species. **With** some possible modifications, it may be adapted for other species. Weyerhaeuser uses **this** model at all Nursery sites.

1/ Nursery Superintendent, Weyerhaeuser North Carolina Forest Tree Nursery, Washington, North Carolina.