

The Use of Lannen RT-2 Transplanters to Transplant Containerized Seedlings at Surrey Nursery¹

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Abstract.--The use of Lannen RT-2 transplanters, rather than planting wheel type transplanters led to significant cost savings at Surrey Nursery.

Surrey Nursery is a forest seedling nursery located in the Fraser Valley in British Columbia. At Surrey Nursery seedlings are grown for planting sites located in both coastal and interior regions of B.C.

In 1989 requests to supply large white spruce planting stock primarily for the Prince George region totaled 9.85 million seedlings. These requests asked for container seedlings to be started in greenhouses with transplanting to bare-root transplant beds to take place in midsummer. Approximately 6.5 million seedlings were grown in this way. An additional 3.3 million seedlings were grown in containers on an open compound and transplanted directly from the containers in April 1990.

Transplanters on hand at the nursery to do this job were manufactured by the Mechanical Transplanter Company in Holland, Michigan. The design of these machines limits production for each unit to about 1900 plants per hour with each planting unit. The operator of the unit must have seedlings readily accessible, that is, they must be extracted from the container and bundled. This is due to the fact that in the normal operation of the machine, seedlings are placed in rubber clips by the operator. The operator holds the seedling in place while the planting wheel rotates until the clip closes on the seedling. The seedling is then carried by the planting wheel to the furrow that is opened by the planting shoe of the machine.

Early in 1989 we became aware of the Lannen Transplanter system which is manufactured in Finland. Contacts with Hakmet Ltd. confirmed that this equipment would be capable of handling the type of seedlings that would be produced at Surrey.

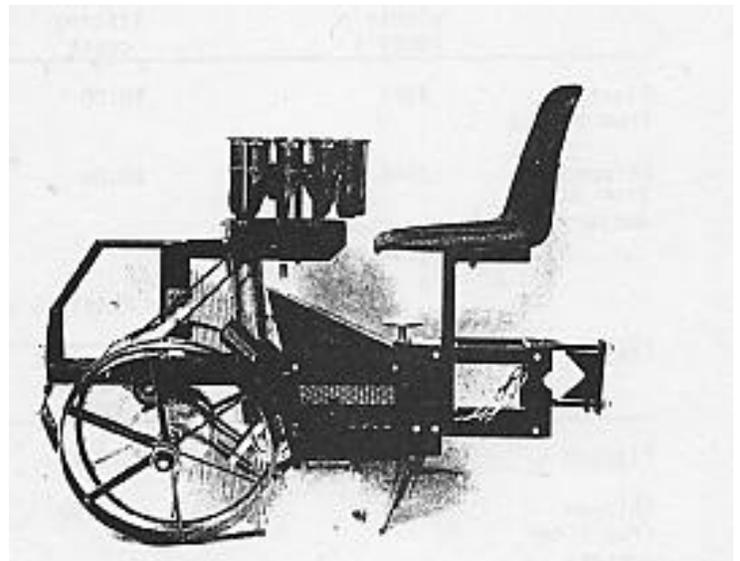


Figure 1.--Lannen RT-2 Transplanter

Estimates of the speed of the Lannen units suggested a 25 to 30 per cent saving in time transplanting. It was also apparently possible for the transplanter operators to carry out the extraction of the seedlings during the transplanting operation. Total savings in labor costs for the 1989 summer transplant program were expected to be about \$50,000. The cost of the twelve machines was set at about \$40,000.

The machines were ordered in February and after some delays, they arrived at the nursery in April.

Existing frames for carrying the Mechanical Transplanters were then modified to carry the Lannen Transplanters and racks to carry styroblocks were fabricated and installed for a labor and material cost of about \$2500. The planting machines were mounted in the frames in the same configuration as the mechanical transplanters, that is, in a gang of six to allow the planting of six rows per bed with approximately six inches between the rows.

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In July transplanting with the new system was begun. Few problems were encountered. Speed and ease of use was as good as forecast. Planting quality was better than with the Mechanical Transplanter System. Operators were more comfortable on the new units and found that the

job was more interesting when extracting was performed on the transplanter units. Cost savings were as predicted. Production rates per planting unit averaged about 2200 seedlings per hour. These machines have allowed significant savings in labor and dollars. (Table 1.)

Table 1.--Costs incurred using carousel type planter (actual 1989 costs) and projected costs with planting wheel type planter (based on actual 1988 costs.)

CAROUSEL TYPE PLANTER					
Costs	No. of Plants (000)'s	per plant lifting costs	per plant planting costs	total lifting cost	total planting cost
Planted from blocks	4378	\$0.00	\$0.0189	\$0.00	\$82,744.20
Shipped from other nursery	2048	\$0.00	\$0.0189	\$0.00	\$38,707.20
	Total actual cost (lifting and planting)				\$121,451.40
PLANTING WHEEL TYPE PLANTER					
Costs	No. of Plants (000)'s	per plant lifting costs	per plant planting costs	total lifting cost	total planting cost
Planted	4378	\$0.0135	\$0.0212	\$59,103.00	\$92,813.60
Shipped from other nursery	2048	\$0.00	\$0.0212	\$0.00	\$43,417.60
	Total actual cost (lifting and planting)				\$195,334.20
	Cost reduction				\$73,882.80