MICRO CONTAINER TRANSPLANTS

FINAL REPORT

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TITLE Micro Container Transplants

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(Date and Signature) (for Regions - Silviculture Office)

(a) Wide Distribution

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(Date and Signature) (for Regions - Forestry Manager)

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Objective

The demand for large planting stock for certain site conditions and the possibility that equipment may soon be available to transplant from very small containers to larger containers created the need for experience in growing transplanted seedlings. The very small initial container allows cost effective use of closely controlled greenhouse environments. After transplanting to larger containers, less costly facilities would be used. Early sowing dates will be necessary to maximize the potential of the system. Species tested were those that require large planting stock to grow vigorously on competitive sites. All seedlings except controls were greenhouse started in small containers, i.e. Speedling #0001 and transplanted into larger containers after 2 months.

Experimental Design

Seedlots of Sitka spruce (951), interior spruce (1831) and western hemlock (3899) were sown in late March in a greenhouse using small cavities (Speedling #0001). Controls were sown in PSB 211's. After two months, the Speedling trees were transplanted into PSB 415A's and PSB 615's. After transplanting, spruce and hemlock were placed in an outdoor shadeframe and Sitka in an uncovered outdoor area. Controls were sown both directly outside and in the greenhouse, being moved out with the transplants.

Two transplant soil media were used, standard peat-vermiculite and 3:1 sawdust-peat. Some of the blocks, both Speedlings and transplant blocks, were painted with copper carbonate to evaluate the effect on root form.

Results

Two problems with this experiment resulted in very small transplant stock. The quality of this stock was so far below that anticipated that no morphological measurements were made.

First, for slow growing species, the sowing date was too late to take full advantage of the large container sizes. This problem was compounded by the second difficulty. It was observed that after transplanting, the wide spacing of seedlings resulted in suppression apparently due to high light levels. This occurred with the spruce and hemlock under 20-30% shade and to Sitka in an open area. This did not occur in PSB 211 controls where the close spacing results in mutual shading after a canopy is formed.
Conclusions

Very early sowing dates or 1 1/2 year rotations will be necessary to utilize the full potential of large cavity sizes when part of the rotation is in low cost outdoor facilities.

When transplanted into large containers and moved outside, height growth can be expected to be suppressed due to low seedling density and high light levels. Either significant height growth will have to be achieved in the primary facility, or adequate levels of shading will have to be provided in the secondary facility when container types having low seedling densities are used.

G. Matthews