PERFORMANCE OF CONTAINER-GROWN AND BARE-ROOT JACK PINE THREE YEARS AFTER OUTPLANTING ON A NORTHERN ONTARIO CUTOVER

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During the spring of 1979 an outplanting was conducted in Makawa Township (Let. N. 48° 36', Long. 83° 55') to study early growth and establishment of jack pine *(Pines banksiana* Lamb.) bare-root and container-grown nursery stock. The planting site previously supported jack pine and black spruce *(Picea mariana* [Mill.] B.S.P.) and was logged in 1977, prescribed burned and T.T.S. disc trenched during the spring and summer of 1978. The soil is stone-free, fine to medium sand, and shallow to deep over bedrock with a pH of 4.7 to 5.4.

One dry and one fresh site were selected and planted, in late May, with three stock types: 1) 2-0 bare-root, 2) overwintered FH 408 Japanese paperpots (70 cm^3) and 3) Spencer-Lemaire "Rootrainers" (40 cm^3). In addition, three successive plantings were established at 2-week intervals on the dry site with the third and fourth containing one additional stock type, i.e., spring-sown FH 408 Japanese paperpots. Thus the first and second planting contained bare-root and overwintered stock types and the third planting contained all stock types, while the fourth contained only spring-sown stock. The bare-root and overwintered container-grown stock were placed in cool storage (1° C) to prevent bud flush until time of planting whereas the spring-sown stock was stored on site until planted. AIL plantings conformed to a randomized block design with five replications of 35 trees each in the first planting, and 50 trees each in subsequent plantings.

Although the poster display outlined growth responses in relation to soil moisture, stock types and time of planting in some detail, only third year survival and average height data are summarized here.

The data demonstrate that: 1) survival of bare-root stock is significantly less than that of container stock on both sites; 2) initial height differences between bare-root and container-grown stock at time of planting remained significant on the dry site but were nonsignificant after the third growing season on the fresh site; 3) site differences have a significant effect on total height of container stock but this difference became noticeable only during the third growing season.

	Dry site		Fresh site	
Stock type	Survival %	Height cm	Survival %	Height cm
Bare-root	81a[a]	67.3a	73a	66.8
Overwintered paperpots	98b	59.0b*	99b	63.7*
Overwintered "Rootrainers"	98b	58.0b*	97b	66.4*

[a]Figures in columns not followed by the same letter and figures in rows marked with an asterisk differ significantly at the 99% level.

Another observation was that planting delays did not have a significant effect on survival. However, total height and height increment for all stock types showed a significant reduction between the plantings of 31 May and 27 June. Furthermore, survival differences between overwintered and spring-sown stock were not significant. The spring-sown stock did not increase significantly in height during its first year after outplanting. Its height increment in the second and third year after outplanting was similar to the first and second year height increment of the overwintered stock. Therefore, plantations established with spring-sown stock can be expected to have a one-year lag in growth in comparison with overwintered stock planted in the same year.

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