

ROOT SYSTEM DEVELOPMENT AFTER PLANTING OF VARIOUS

SCOTS PINE NURSERY STOCK TYPES

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The height growth and root development of several different types of Scots pine (*Pinus sylvestris* L.) nursery stock and direct-sown seedlings were compared 7-9 years after planting or sowing in the field. The types of nursery stock compared were bare-root transplants, peat-pot seedlings (pot sizes FP-615 and FP-620), peat-pot transplants (pot size FP-522 B), paperpot seedlings (FH 408) and plastic roll seedlings (Nisula roll). At the time of planting containerized seedlings were one year old and the bare-root transplants two years old. In the case of the containerized seedlings grown in FP-615, FP-620 and FH 408 pots, any roots penetrating the container wall were pruned immediately prior to planting.

The experiment was conducted on three typical sites used for operational forestry in southern Finland, located at Varkhaus, Heinola and Vilppula. The sites were prepared by plowing, and the nursery stock was planted on the shoulders of the plow furrow. A fourth experiment was established in the nursery of the Suonenjoki Research Station, where root system development could be studied in a favorable growth environment. In all, 9600 plants were included in the study.

Survival and height growth after outplanting in the field were best for the bare-root stock. In the nursery the direct sown seedlings had the highest relative height growth. Pruning of the roots of containerized seedlings prior to outplanting did not reduce height growth in comparison with that of unpruned seedlings.

In comparison with other stock types, the bare-root stock had the highest number of plants with taproots classified as deformed. Among the containerized stock types no differences were found in incidence of deformed root systems or in numbers of lateral roots (Parviainen 1976). No relationships were found between parameters of root development and height growth after planting. The pruning of long roots penetrating the container wall prior to outplanting was judged to be beneficial since these stock types had less deformed root systems, larger total root areas and better stability than unpruned containerized stock.

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1976. Initial development of root systems of various types of nursery stock for Scots pine. *Folia For.* 268:1-21.

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