

PLANT SYSTEM 80:

BACKGROUND, SHORT DESCRIPTION, PLANS

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Stora Kopparberg-Bergvik owns 800,000 ha of productive forest land in central Sweden. Over a long period of time new forests have been established through sowing and more recently by planting. Almost 25 million plants are set out each year. In 1970 we changed from bare-root plants to container plants (Japanese paperpots and some multipots). Stora Kopparberg-Bergvik now has more than 10 years' experience in using container-grown plants.

On the basis of this experience we have found that today's container systems have the following drawbacks:

- Roots are guided to the bottom of the container. This is disadvantageous to the establishment of seedlings after planting and is a problem with spruce particularly.
- The systems do not allow an accurate sorting of plants before delivery to the forest.
- The plant packages delivered to the forest are either too large or too heavy and therefore difficult to handle, or call for return transport.
- Because of the heaviness of existing systems plant production costs have soared during the last few years.

Since 1978, when it became clear that we could neither come to terms with these drawbacks nor find a better system on the market, we have concentrated on developing our own system (Fig. 1) which is distinguished by the following :

- Containers allow the roots to grow at all horizontal levels. Most roots are pruned by the air space between the containers. In case of roots bridging the air space, automatic root pruning will be carried out at the nursery. Equipment for root pruning is under development.

- It is possible to sort plants, even as seedlings, thus avoiding too many empty containers during the nursery period. A machine that "senses" seedlings and rejects empty containers has been tested. It must be supplemented by equipment for transplanting seedlings into the empty containers.
- Containers are joined together to form easily handled units for circulation within the nursery only. These units allow automatic filling, sowing, sorting and packing.

A peat filling machine, a sowing machine and pallets for air pruning and transportation within the nursery have all been used and tested. Automatic systems for pre-delivery sorting of seedlings and packing into cardboard boxes are also being developed.

- The plant packages are easy to handle for manual planting and can be adapted to automatic planting. For manual planting special cardboard boxes are used.

Present production costs at the nursery are estimated to be the same as for paperpot seedlings, but should drop after a few years. The system is estimated to bring about lower costs for transportation to the forest and for planting.



Figure 1. Pine seedlings grown in Plant System 80 containers.

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