

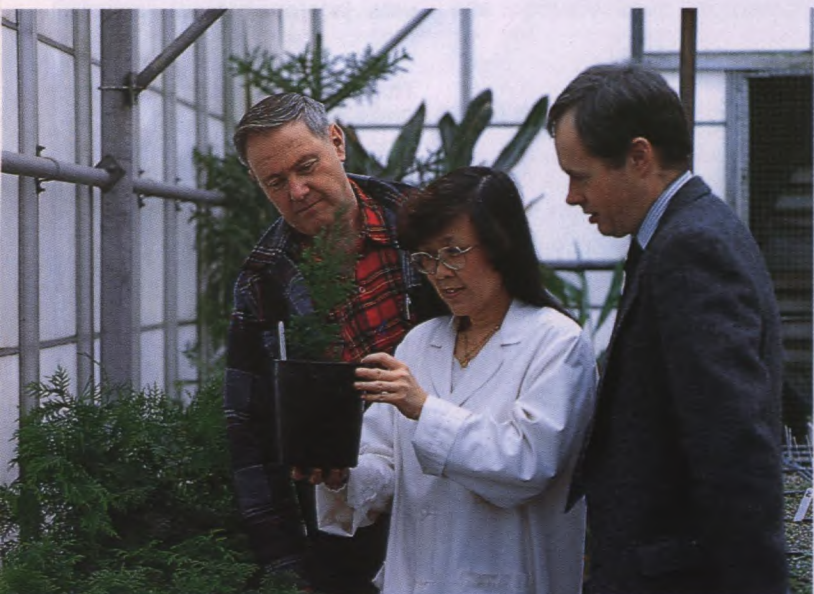
Encouraging Forest

Growth



A number of plantules are produced in test tubes from a single yellow cedar plant.

(Canfor Corporation)



The micro-shoots are then transplanted into the soil in the greenhouse, until they can be transplanted outside.

(Canfor Corporation)

One of the major contributions of biotechnology to forest health and growth is undoubtedly the successful association of mycorrhizal fungi and trees. It has been shown that mycorrhiza improve the chances of survival of young plants by allowing them to better absorb water and mineral salts (particularly phosphorus) and by providing them with some protection against pathogenic agents.

The Rhizotec company of Saint-Jean-Chrysostome, Quebec, marketed three mycorrhizal inoculants in the course of 1988 and became the first Canadian firm to succeed in this sector. In the three cases, the fungus used was *Laccaria bicolor*, an edible fungus that is routinely consumed as food. This company also developed a technique for the inoculation of plants in containers, a method that makes it possible to inoculate 20 000 plants per hour. Rhizotec has a bank of 152 different strains of mycorrhizal fungi and is in the process of producing approximately 12 on a commercial basis.

Balco Canfor Reforestation Centre Ltd. of Kamloops, British Columbia, is also very active in this area of biotechnology and produces about 10 million plants per year, mainly white pine, lodgepole pine and Douglas fir. The nursery uses mycorrhizal fungi to improve the quality of

the plants and the rate of survival after planting. Various experiments have in fact shown that the rate of survival of the plants could be increased by about 25 per cent. The rate of growth of mycorrhized trees is also higher.

Within the framework of its genetic improvement program, Canfor Corporation of Vancouver, British Columbia, an affiliate of Balco Canfor Reforestation Centre Ltd., has developed "super-trees," or hybrids, that grow faster and produce wood of better quality.

Moreover, in collaboration with Les Clay's nursery of Langley, British Columbia, a project is under way to culture tree tissues in order to produce clones of high-quality conifers and reproduce them quickly through micropropagation. This technique has been successfully used with yellow cedar, and studies are being carried out with other species, such as Douglas fir and sitka spruce. These efforts are expected to improve by 10 per cent the yield of future plantations, and in general, tissue culture and cloning will save time that is precious for the Canadian forest. Canfor Corporation is the only Canadian forestry company that is so deeply involved in the use of advanced techniques for the genetic improvement of conifers.