

## GROWTH REGULATOR NOTES

Growers of Norfolk Island pine (*Araucaria heterophylla*) desire compact trees for sale as Christmas trees. If a means could be found to shorten the length of the main trunk between whorls, it would increase the attractiveness of the Christmas tree.

Six growth retardants were sprayed on 18-inch seedling trees four times at 1-month intervals from September through December. Total height measurements made in May showed no difference that could be attributed to chemical treatment. Terminals were distorted by Maintain (a chlorflurenol from U.S. Borax) and Niagara 10637 (from Niagara Chemical Division of FMC). Apical dominance was apparently overcome by the latter, as on two plants lateral branches assumed an upright habit and began branching radially instead of maintaining their usual flat growth habit. Measurements of internode length of the last four internodes suggested ancymidol and SADH may have some retarding effects.

When Christmas trees of this species are harvested, one or two axillary buds develop at the basal whorl of branches left on the stump. The axis regenerates another tree in 3 to 5 growing seasons. Since only one tree per stump is desired, the other upright axis is removed and could be used to increase the clone if it were of desirable growth habit.

Holes were drilled in stumps of young seedling trees, and cytokinins, ethephon, and a morphactin were added at a  $10^{-3}$  molar concentration. Chlorflurenol caused necrosis or browning of the top whorl of branches. Neither N-6-benzyladenine nor ethephon increased the number of buds appearing 10 weeks later, but an experimental cytokinin, SD8339, from the Shell Development Company *did increase* the number of buds from 7.5 for the control to 12.3 on a per-plant basis. Ultimately, however, competition between buds left only one or two actively growing shoots.

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