Time and section thickness in relation to tetrazolium staining reaction in three tree species

Section thickness-microns	Time—hours Douglas fir 24	48	72	Hemlock 24	48	72	Cedar 24	28	72
30	0[1]	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
50	0	x	x	0	0	0	0	0	0
60	x	x	x	0	0	0	0	0	0
80	x	x	x	0	0	x	0	0	0
100	x	x	x	0	x	x	0	0	0
140	x	x	x	x	x	x	0	0	0
180	x	x	xx	x	x	x	0	0	0
200	x	x	xx	x	x	x	0	0	0
300	x	x	xx	x	x	x	0	x	x
400	xx	xx	xx	x	xx	xx	x	x	x
800	xx	xx	xx	xx	xx	xx	x	x	x
block	xx	xx	xx	xx	xx	xx	xx	xx	xx

[1]0—no colour
x—pink
xx—red

—J. A. Chapman and S. H. Farris.

Effects of Systemic Antibiotics on Needle-cast of Douglas Fir Three Years after Application.—In 1960, trees infected with *Rhabdocline pseudotsugae* Syd. were treated with various concentrations of Phytoactin, Actidione (cycloheximide), and chemical derivatives of cycloheximide (Weir, L.C., For. Chron. 39: 205-211). Infected needle and tree mortality counts for these trees have been recorded annually since 1961. In 1961 it was found that basal stem applications of concentrations ranging from 100 to 800 ppm resulted in the death of 51 per cent of the trees so treated. By 1963 this value had increased to 59 per cent. Corresponding figures for trees treated with foliar applications were 5 per cent and 7 per cent. No mortality has been recorded for the check trees during the three-year period.

Two compounds, Phytoactin and cycloheximide thiosemicarbazone, appear to be the most promising of the materials used. Little phytotoxicity, and good control of needle-cast resulted from their application both as basal stem and foliar sprays. The percentage of infected needles for check trees in 1961 was 34 per cent while those for trees treated with the two compounds were 8 per cent and 7 per cent respectively. In 1962 the check tree infection level rose to 51 per cent and the levels for the Phytoactin and cycloheximide thiosemicarbazone treated trees were 18 per cent and 20 per cent. However, in 1963, the check tree level rose to 53 per cent but the levels for the two compounds returned to 8 per cent and 9 per cent. No explanation can be offered for this apparent lack of consistency.

Where tree survival has permitted assessment of infection levels on trees treated with basal stem applications, the highest percentage of infected needles recorded in 1963 was 17 per cent. Similar levels of infection were recorded for foliar sprays with the exception of cycloheximide methyl hydrazone which, as in 1961, resulted in an infection level not significantly different from check trees.—L. C. Weir.

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