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Supercooling In Over-wintering Pine Beetle Larvae.

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Pine beetle larvae cause over \$1 Billion in forest loss each year in the United States and Canada. The larvae survive over winter to temperature of -25C beneath the tree bark by supercooling. The amount of supercooling exhibited by the larvae is seasonally dependent and is greatest in the coldest northern hemisphere winter months (January and February) . We tested the ability of pine beetle larvae to withstand supercooling stress by subjecting recently harvested tree sections to different below freezing temperatures and then determining the mortality rate of the larvae. For February trees, larvae survived to beyond -15C, but were killed 100% by -25C. It is suggested that it might be possible kill all of the larvae in a living tree by subjecting the tree to a cold stress.